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fact book for fiscal year 1976

The National Heart, Lung, & Blood Institute

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National Heart, Lung and Blood Institute

THE NATIONAL HEART, LUNG, AND BLOOD INSTITUTE'S

FACT BOOK for FISCAL YEAR 1976

This information has been assembled for use by NHLBI staff, the National Heart, Lung, and Blood Advisory Council, and the interested scientific community. Questions regarding any of this information should be directed to the NHLBI Information Office, National Heart, Lung, and Blood Institute, 9000 Rockville Pike, Bethesda, Maryland 20014.

OCTOBER 1976

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service National Institutes of Health

DHEW Publication No. (NIH) 77-1172

RC
681
N2 748
1976

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Directory of NHLBI Personnel*

	Bldg.	Room	Ext.
OFFICE OF THE DIRECTOR			
Director, Dr. Robert I. Levy	31	5A52	65166
Deputy Director, Dr. Robert L. Ringler	31	5A49	61078
Assistant Director for Prevention, Education and Control, Dr. Jim L. Shields	31	5A10	62011
Executive Officer, Mrs. Evelyn L. Attix	31	5A50	62411
Assistant Executive Officer, Mr. Jack Nance	31	5A50	62411
Assistant to the Director for International Programs, Dr. Ruth J. Hegyeli	31	5A33	65375
Coordinator for Minority Affairs, Mrs. Juanita P. Cooke	31	5A19	61763
Office of Administrative Management, Director, Mrs. Evelyn L. Attix	31	5A50	62411
Administrative Officer, Mr. Ellis E. Mullinix	31	5A46A	65931
Financial Management Officer, Mr. John H. Reeder	31	5A24	64653
Personnel Officer, Mr. Allan K. Summers	31	5A32	66477
Management Analysis Staff, Ms. Sheila Pegram (Acting)	31	5A32	65931
Office of Prevention, Education and Control, Director, Dr. Jim L. Shields	31	5A10	62011
Chief, Health Education and Behavioral Research Branch, Dr. Stephen M. Weiss	31	5A10	62005
Chief, Public Inquiries and Reports Branch (Information Office), Mr. York E. Onnen	31	5A03	64236
Office of Program Planning and Evaluation, Director, Dr. Jay Moskowitz	31	5A27	66331
Chief, Program Development and Evaluation Branch, *Vacant*	31	5A33	66331
Chief, Systems Analysis and Planning Branch, Mr. James W. Grodsky	31	5A31	65031
DIVISION OF HEART AND VASCULAR DISEASES			
Director, Dr. Sidney Blumenthal	31	4A19	65437
Associate Director for Program Coordination, Dr. Mary Jane Jesse	LA	C808	61978
Administrative Officer, Mr. Dale D. DeWald	LA	C804	65595
Program Planning Officer, Mr Philip Janus	LA	C803	61613
Coordinator, National High Blood Pressure Education Program, Mr. Graham W. Ward	LA	D126	61051
Chief, Lipid Metabolism Branch, Dr. Basil Rifkind	31	4A19	61681
Chief, Manpower Branch, Dr. Donald M. MacCanon	LA	C916	61846
Coordinator, Prevention, Education and Control, Dr. Alice M. McGill	LA	1005	61706
Associate Director for Cardiology, Dr. Peter L. Frommer	LA	A922	65421
Chief, Cardiac Diseases Branch, Dr. Peter L. Frommer (Acting)	LA	A922	65421
Chief, Cardiac Functions Branch, Dr. Don H. Blount	LA	C918	61627
Chief, Devices and Technology Branch, Dr. John T. Watson	LA	A920	61586
Associate Director for Clinical Applications and Prevention, Dr. William J. Zukel	LA	C809	62533
Chief, Biometrics Research Branch, Dr. Max Halperin	LA	C837	65095
Chief, Clinical Trials Branch, Dr. William T. Friedewald	LA	C818	64323
Chief, Epidemiology Branch, Dr. Manning Feinleib	LA	C825	62327
Chief, Preventive Cardiology Branch, Dr. William J. Zukel (Acting)	LA	C809	62533
Associate Director for Etiology of Arteriosclerosis and Hypertension, Dr. Gardner C. McMillan	LA	C803	61613
Chief, Atherogenesis Branch, Dr. Gardner C. McMillan (Acting)	LA	C803	61613
Chief, Hypertension and Kidney Diseases Branch, Dr. Ronald G. Geller	LA	C816	61857

*Current as of October 1, 1976. For locating personnel not listed, the general information number is 301-656-4000. For direct dialing, the area code is 301, 49 plus extension.

LA—Landow Building, 7910 Woodmont Avenue, Bethesda, Maryland 20014
WW—Westwood Building, 5333 Westbard Avenue, Bethesda, Maryland 20016

DIVISION OF LUNG DISEASES	Bldg.	Room	Ext.
Director, Dr. Claude J. M. Lenfant	WW	6A18	67208
Special Assistant to the Director, Dr. Malvina Schweizer	WW	6A16	67208
Associate Director for Program Planning and Evaluation, Dr. Suzanne Hurd	WW	6A15	67440
Administrative Officer, Mrs. Rita Lyons	WW	6A16	67208
Chief, Airways Diseases Branch, Dr. Suzanne Hurd (Acting)	WW	6A15	67440
Chief, Interstitial Lung Diseases Branch, Dr. Lynn Blake	WW	6A03	67032
Chief, Prevention, Education, and Manpower Branch, Dr. John B. Mathis	WW	6A05	67668
Chief, Structure and Function Branch, *Vacant*	WW	6A10	67171
DIVISION OF BLOOD DISEASES AND RESOURCES			
Director, Dr. Wolf W. Zuelzer	31	4A04	64868
Special Assistant for Blood Research Coordination, Dr. George Eaves	31	4A04	64186
Special Assistant for Research Training, Dr. Fann Harding	31	5A04	65913
Administrative Officer, Mr. John B. Lyons	31	4A23	63533
Chief, Blood Diseases Branch, Dr. Joseph Fratantoni	31	4A05	65911
Chief, Blood Resources and Transplantation Branch, Dr. Anthony René (Acting)	31	4A04	64868
Chief, Sickle Cell Disease Branch, Dr. Clarice Reid	31	4A27	66931
Chief, Special Programs Branch, Dr. Donald G. Therriault	31	4A11	61817
DIVISION OF EXTRAMURAL AFFAIRS			
Director, Dr. Jerome G. Green	WW	7A18	67416
Deputy Director, Dr. W. Glen Moss	WW	7A18	67225
Associate Director for Review, Dr. Samuel M. Schwartz	WW	554	67915
Chief, Office of Program Policy and Procedure, Dr. W. Glen Moss	WW	7A18	67225
Administrative Officer, Mr. Brian Campbell	WW	7A11	67893
Chief, Contracts Operations Branch, Mr. Curtis D. Tate	WW	5A11A	67793
Chief, Grants Operations Branch, Mr. James M. Pike	WW	657	67078
Chief, Reports and Evaluation Branch, Dr. Robert A. Resnik	WW	650	67875
Chief, Review Branch, Dr. Samuel M. Schwartz	WW	554	67915
DIVISION OF INTRAMURAL RESEARCH			
Director, Dr. Jack Orloff	10	7N214	62116
Clinical Director, Dr. Harry Keiser	10	7N220	61556
Administrative Officer, Mr. Richard P. Striker	10	7N216	63483
Chief, Cardiology Branch, Dr. Stephen E. Epstein	10	7B15	65817
Chief, Hypertension-Endocrine Branch, Dr. Frederic C. Bartter	10	8N214	66268
Chief, Molecular Disease Branch, Dr. Bryan Brewer	10	7N117	65095
Chief, Molecular Hematology Branch, Dr. W. French Anderson	10	7D20	66861
Chief, Pathology Branch, Dr. William C. Roberts	10	3E30	65203
Chief, Pulmonary Branch, Dr. Ronald G. Crystal	10	6D04	65020
Chief, Surgery Branch, Dr. Andrew G. Morrow	10	6N252	64285
Chief, Laboratory of Biochemical Genetics, Dr. Marshall W. Nirenberg	36	1C27	62401
Chief, Laboratory of Biochemistry, Dr. Earl R. Stadtman	3	222	64096
Chief, Laboratory of Cell Biology, Dr. Edward Korn	3	318	61616
Chief, Laboratory of Cellular Metabolism, Dr. Martha Vaughan	10	5N307	64554
Chief, Laboratory of Chemical Pharmacology, Dr. James R. Gillette	10	8N117	65095
Chief, Laboratory of Chemistry, Dr. Henry M. Fales	10	7N306	62135
Chief, Laboratory of Experimental Atherosclerosis, Dr. Donald L. Fry	10	5N204	64826
Chief, Laboratory of Kidney and Electrolyte Metabolism, Dr. Maurice B. Burg	10	6N307	63187
Chief, Laboratory of Technical Development, Dr. Robert L. Bowman	10	5D18	62557

Research Positions at NHLBI[1]

The National Heart, Lung, and Blood Institute recognizes that the wealth of scientific talent available both in this country and abroad is one of the most valuable resources to be drawn upon in combatting diseases of heart, lung and blood. In an effort to attract and sustain the highest quality scientific staff, NHLBI uses two personnel systems: the U.S. Civil Service and the PHS Commissioned Corps. In addition, the Staff Fellowship and NIH Visiting Programs meet special needs, as do appointments of Special Experts or Consultants.

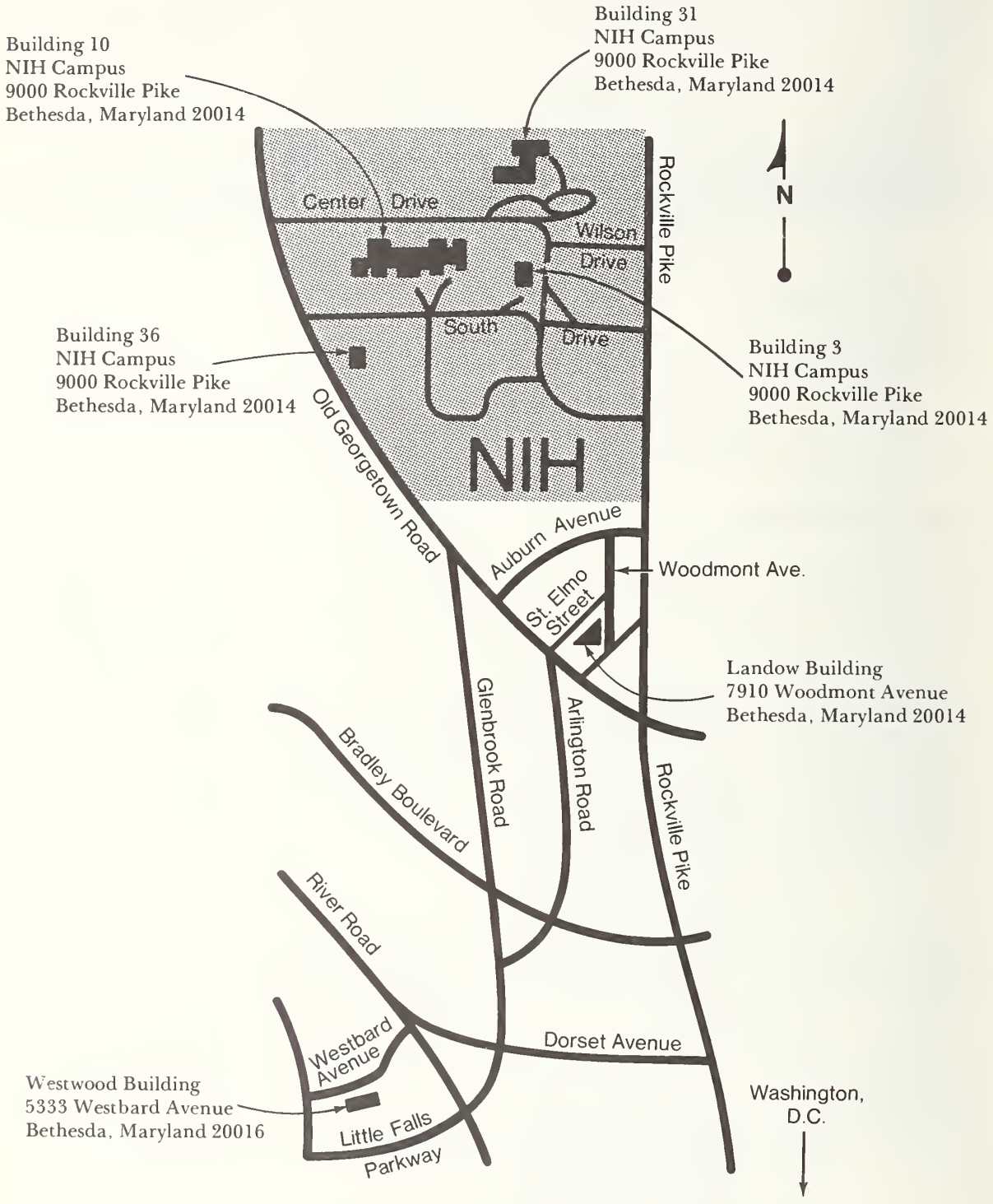
POSITION	ELIGIBILITY	ANNUAL SALARY	MECHANISM OF ENTRY
I. CIVIL SERVICE			
A. Civil Service (tenured)	Appropriate advanced education, experience and knowledge needed by NHLBI to conduct its programs	Minimum Starting: GS-11. Maximum: $39,600	Civil Service Commission. Contact Director or Laboratory Chief in area of interest or the NHLBI Personnel Office
II. SPECIAL APPOINTMENT OF EXPERTS OR CONSULTANTS			
A. Special Appointment of Experts and Consultants (non-tenured appointment which can be extended up to 4 years)	Applicants shall possess outstanding experience and ability such as to justify recognition as authorities in their particular fields of activity	Minimum starting: GS-13. Maximum: $39,600	Recommendation by Division Directors. Final approval rests with the Director, NHLBI
III. USPHS COMMISSIONED CORPS Associate Training Program including CORD residency deferment program (limited tenure, maximum 3 years)[2]			
A. Clinical Associate	Graduates of medical schools, including internship	Pay and allowances of Senior Assistant Surgeon or Surgeon of PHS Commissioned Corps	Apply to Clinical and Professional Education Section, Clinical Center, National Institutes of Health
B. Research Associate	Graduates of medical schools, including internship	Pay and allowances of Senior Assistant Surgeon or Surgeon of PHS Commissioned Corps	Apply to Clinical and Professional Education Section, Clinical Center, National Institutes of Health
C. Staff Associate	Graduates of medical and dental schools, or other doctoral qualifications	Pay and allowances of Senior Assistant Surgeon of PHS Commissioned Corps	Apply to Clinical and Professional Education Section, Clinical Center, National Institutes of Health
D. Senior COSTEP Program (Medical)	Senior medical students	Pay and allowances of Junior Assistant Health Service Officer, plus payment of tuition, fees, and other necessary expenses. Candidates incur 2-year active duty obligation with PHS Commissioned Corps	Apply to Clinical and Professional Education Section, Clinical Center, National Institutes of Health

[1] Does not necessarily indicate that positions are currently available at the National Heart, Lung, and Blood Institute.
[2] Appointments are made upon intellectual attainment and demonstrated research interest and ability matched to NHLBI's needs.

POSITION	ELIGIBILITY	ANNUAL SALARY	MECHANISM OF ENTRY
IV. VISITING PROGRAM (limited tenure)[3]			
A. Visiting Fellow (maximum 3 years)	1-3 years postdoctoral education	$10,000 Minimum	Contact Director or Laboratory Chief in area of interest
B. Visiting Associates (1 year with renewals to end of project)	3 + years postgraduate education with appropriate knowledge needed by NHLBI	Minimum starting: GS-9	Contact Director or Laboratory Chief in area of interest
C. Visiting Scientist (duration of project)	6 + years postdoctoral education with appropriate unusual experience and knowledge needed	Minimum starting: GS-12	Contact Director or Laboratory Chief in area of interest
V. STAFF FELLOWSHIPS			
A. Staff Fellowships (maximum 6 years)	Physician or other doctoral degree equivalent awarded within last 5 years, U.S. citizen or non-citizen eligible for naturalization within 4 years	Staff Fellow Physicians: $19,740-$24,986; Other Doctorates: $15,120-$23,335; Senior Staff Fellows Physicians: $22,365-$32,801; Other Doctorates: $19,740-$26,527	Contact Director or Laboratory Chief in area of interest or the NHLBI Personnel Office
VI. SPECIAL PROGRAMS			
A. Research Fellow sponsored by organization other than NIH, PHS	Determined by sponsoring organization	Established by sponsoring organization	Contact Director or Laboratory Chief in area of interest; also apply to sponsoring national voluntary health agencies or private foundations
B. COSTEP Program (operates year-round). Maximum 120 days per 12 month period	U.S. citizen with 2 years of baccalaureate program or more in health-related field. May be enrolled in doctoral program or professional school. Physical requirements of PHS Commissioned Corps. Plans to return to college	Pay and allowance of a Commissioned Officer, Junior Assistant Grade	Apply to PHS Commissioned Corps COSTEP SECTION, Parklawn Building, 5600 Fishers Lane, Rockville, Maryland 20852
C. Civil Service Summer Employment Program	U.S. citizen, 18 years or older (16 if high school graduate)	Pay equivalent to GS-1 through GS-4, depending on education and experience	Civil Service Summer Employment Examination (waived for outstanding 3rd year college engineering or physical science students)
	College graduates, graduate students, faculty members, equivalent experience	Pay equivalent to GS-5 through GS-12	Apply to NIH Personnel Staffing Branch
D. Fogarty International Scholars	International reputation, productivity, demonstrated ability in biomedical field	$30,000 per annum	Recommendation to Fogarty Center by Institute Director or Scientist. Contact Director in area of interest

[3] Under most circumstances, the various visiting programs are limited to non-citizens.

Location of Buildings Occupied by NHLBI Personnel



2. NHLBI Highlights: Important Events in NHLBI History

NHLBI Highlights: Important Events in NHLBI History

June 16, 1948. President Harry S Truman signs the National Heart Act, creating the National Heart Institute in the Public Health Service, with the National Advisory Heart Council as its advisory body.

July 7, 1948. Dr. Paul Dudley White is selected to be "Executive Director of the National Advisory Heart Council and Chief Medical Advisor to the National Heart Institute" under Section 4b of the Heart Act.

August 1, 1948. The NHI is established as one of the National Institutes of Health by Surgeon General Leonard A. Scheele. As legislated in the National Heart Act, the NHI will assume responsibility for heart research, training, and administration. Intramural research projects in cardiovascular diseases and gerontology conducted elsewhere in NIH are transferred to NHI. The Director of NHI assumes all leadership for the total PHS heart program.
Dr. Cassius J. Van Slyke is appointed as the first Director of the NHI.

August 29, 1948. Surgeon General Scheele announces the membership of the first National Advisory Heart Council. Varying terms of membership for the 16-member Council commence September 1.

September 8, 1948. The National Advisory Heart Council holds its first meeting.

January 1949. Cooperative Research Units are established at four institutions: the University of California, the University of Minnesota, Tulane University, and the Massachusetts General Hospital. Pending completion of NHI's own research organization and facilities, the Units are jointly financed by NIH and the institutions.

July 1, 1949. The NHI Intramural Research Program is effected, organized on three general research levels consisting of three laboratory sections, five laboratory-clinical sections, and four clinical sections.
The Heart Disease Epidemiology Study at Framingham, Massachusetts, is transferred from the Bureau of State Services, PHS, to NHI.

January 18-20, 1950. NHI and the American Heart Association jointly sponsor the first National Conference on Cardiovascular Diseases in Washington, D.C., to summarize current knowledge and to make recommendations concerning further progress against heart and blood vessel diseases.

December 1, 1952. Dr. James Watt is appointed the Director of NHI, succeeding Dr. Van Slyke, appointed as Associate Director, NIH.

July 6, 1953. The Clinical Center admits its first patient for heart disease research.

July 1, 1957. The first members of NHI's Board of Scientific Counselors begin their terms. The Board was established in 1956 "to provide advice on matters of general policy, particularly from a long-range viewpoint, as they relate to the intramural research program."

February 19, 1959. The American Heart Association and NHI present a report to the Nation—"A Decade of Progress Against Cardiovascular Disease"—at the Department of Commerce Auditorium in Washington.

April 21, 1961. The President's Conference on Heart Disease and Cancer, whose participants on March 15 were requested by President John F. Kennedy to assist "in charting the Government's further role in a National attack on these diseases," convenes at the White House and submits its report.

September 11, 1961. Dr. Ralph E. Knutti is appointed Director of NHI, succeeding Dr. Watt, who becomes head of PHS's international activities.

December 30, 1963. February is designated as "American Heart Month" by a unanimous joint resolution of the Congress, and is approved by President Lyndon B. Johnson.

November 22-24, 1964. The Second National Conference on Cardiovascular Diseases is held in Washington, D.C., cosponsored by the American

Heart Association, NHI, and the Heart Disease Control Program of PHS, to evaluate progress since the 1950 Conference, and to assess needs and goals for continued and accelerated growth against heart and blood vessel diseases.

December 9, 1964. The President's Commission on Heart Disease, Cancer, and Stroke, appointed by President Lyndon B. Johnson on March 7, 1964, submits its report to "recommend steps that can be taken to reduce the burden and incidence of these diseases."

August 1, 1965. Dr. William H. Stewart assumes the Directorship of NHI upon Dr. Knutti's retirement.

September 24, 1965. Dr. William H. Stewart, NHI Director, is named Surgeon General of PHS.

October 6, 1965. A Fiscal Year 1966 supplemental appropriations act (P.L. 89-199) allocates funds to implement the recommendations of the President's Commission on Heart Disease, Cancer, and Stroke that fall within existing legislative authorities. NHI is given $5,050,000 for new clinical training programs, additional graduate training grants, the establishment of cardiovascular clinical research centers on cerebrovascular disease, thrombotic and hemorrhagic disorders, and planning grants for future specialized cardiovascular centers.

March 8, 1966. Dr. Robert P. Grant succeeds Dr. Stewart as Director of NHI. Dr. Grant serves until his death, on August 15, 1966.

November 6, 1966. President Johnson announces the appointment of Dr. Donald S. Fredrickson as Director of NHI.

March 15, 1968. Dr. Theodore Cooper succeeds Dr. Fredrickson as NHI Director, the latter electing to return to research activities with the Institute.

October 16, 1968. Dr. Marshall W. Nirenberg is awarded a Nobel Prize in Physiology for discovering the key to deciphering the genetic code. Dr. Nirenberg, Chief of the NHI Laboratory of Biochemical Genetics, is the first NIH Nobel Laureate and first Federal employee to receive a Nobel Prize.

October 26, 1968. NHI receives the National Hemophilia Foundation's Research and Scientific Achievement Award for its "medical leadership . . . tremendous stimulation and support of research activities directly related to the study and treatment of hemophilia."

November 14, 1968. NHI's Twentieth Anniversary is commemorated at the White House, under the auspices of President Johnson and other distinguished guests.

August 12, 1969. Major NHI reorganization plan creates five program branches along disease category lines in Extramural Programs (Arteriosclerotic Disease, Cardiac Disease, Pulmonary Disease, Hypertension and Kidney Diseases, and Thrombosis and Hemorrhagic Diseases); a Therapeutic Evaluations Branch and Epidemiology Branch under the Associate Director for Clinical Application; and three Offices in the Office of the Director (Heart Information, Program Planning and Administrative Management).

November 10, 1969. National Heart Institute redesignated by DHEW Secretary as *National Heart and Lung Institute,* reflecting broadening scope of functions.

July 9, 1970. Dr. Theodore Cooper, Director of NHLI, convenes a Task Force to develop a long-range plan to combat arteriosclerosis. The goal is a program aimed at prevention and control of the disorder and effective treatment of its complications.

February 18, 1971. President Richard M. Nixon's Health Message to Congress identifies sickle cell anemia as a high priority disease target and calls for increased Federal expenditures. DHEW Assistant Secretary for Health and Scientific Affairs is assigned lead-agency responsibility for coordination of National Sickle Cell Disease Program at NIH and NHLI.

June 1971. The Report of the Task Force on Atherosclerosis summarizes the results of one year of deliberations. Published in two volumes, Volume I deals with general aspects of the problem and presents the major conclusions and recommendations in non-technical language; Volume

II contains technical information on the current state of knowledge and conclusions and recommendations in each of the following areas: atherogenesis, presymptomatic atherosclerosis, overt atherosclerosis, and rehabilitation.

March 27-31, 1972. The first US-USSR Joint Committee for Health Cooperation meeting is convened to develop and plan new approaches to a health exchange program in specific areas, including the cardiovascular field.

May 16, 1972. The National Sickle Cell Anemia Control Act (P.L. 92-294) provides for a national diagnosis, control, treatment, and research program. The Act does not mention NHLI, but has special pertinence because NHLI has been designated to coordinate the National Sickle Cell Disease Program.

May 23, 1972. William P. Rogers, US Secretary of State, and B. V. Petrovsky, USSR Minister of Health, sign a five-year agreement for a Cooperative Health Program in the following cardiovascular areas: pathogenesis of arteriosclerosis, management of ischemic heart disease, myocardial metabolism, and congenital heart disease. In March 1973, two additional cardiovascular areas —sudden death, and blood transfusion, blood components, and the prevention of hepatitis, with particular reference to cardiovascular surgery—are incorporated in the US-USSR five-year agreement in the field of medical sciences and public health.

June 12, 1972. HEW Secretary Elliot Richardson approves a nationwide program for high blood pressure information and education, and appoints two committees to implement the program: The Hypertension Information and Education Advisory Committee, chaired by the Director, NIH; and the Intra-agency Working Group, chaired by the Director, NHLI. A High Blood Pressure Information Center is established within the NHLI Office of Information to collect and disseminate public and professional information about the disease.

July 14, 1972. HEW Secretary Richardson approves a reorganization of NHLI, elevating the Institute to Bureau status within NIH and comprising seven division-level components: Office of Director, Division of Heart and Vascular Diseases, Division of Lung Diseases, Division of Blood Diseases and Resources, Division of Intramural Research, Division of Technological Applications, and Division of Extramural Affairs.

September 19, 1972. The National Heart, Blood Vessel, Lung, and Blood Act of 1972 (P.L. 92-423) expands the authority of the Institute to advance the national attack upon these diseases. The Act calls for intensified and coordinated Institute activities to be planned by the Director and reviewed by the NHLI Advisory Council.

July 24, 1973. The first Five-Year Plan for the National Heart, Blood Vessel, Lung, and Blood Program is transmitted to the President and to the Congress.

December 17, 1973. The National Heart and Lung Advisory Council completes its first Annual Report on the National Program.

February 13, 1974. The Director of NHLI forwards his First Annual Report on the National Program to the President for transmittal to the Congress.

April 5, 1974. The HEW Assistant Secretary for Health authorizes release of the Report to the President by the President's Advisory Panel on Heart Disease. The report of the 20-member panel, chaired by Dr. John S. Millis, includes a survey of the problem of heart and blood vessel disorders and panel recommendations to reduce illness and death from these disorders.

June 28, 1974. Henry A. Kissinger, US Secretary of State, and Andrei Gromyko, USSR Minister of Foreign Affairs, sign a three-year agreement in Moscow on Cooperation in Artificial Heart Research and Development. NHLI is designated the coordinating institute for the United States.

August 2, 1974. The Secretary of HEW approves regulations governing the establishment, support, and operation of National Research and Demonstration Centers for heart, blood vessel, lung, and blood diseases, which implement Section 415 (b) of the PHS Act, as amended by the National Heart, Blood Vessel, Lung, and Blood Act of 1972: 1) To carry out basic and clinical research on heart, blood vessel, lung, and blood diseases; 2) to provide demonstrations of advanced

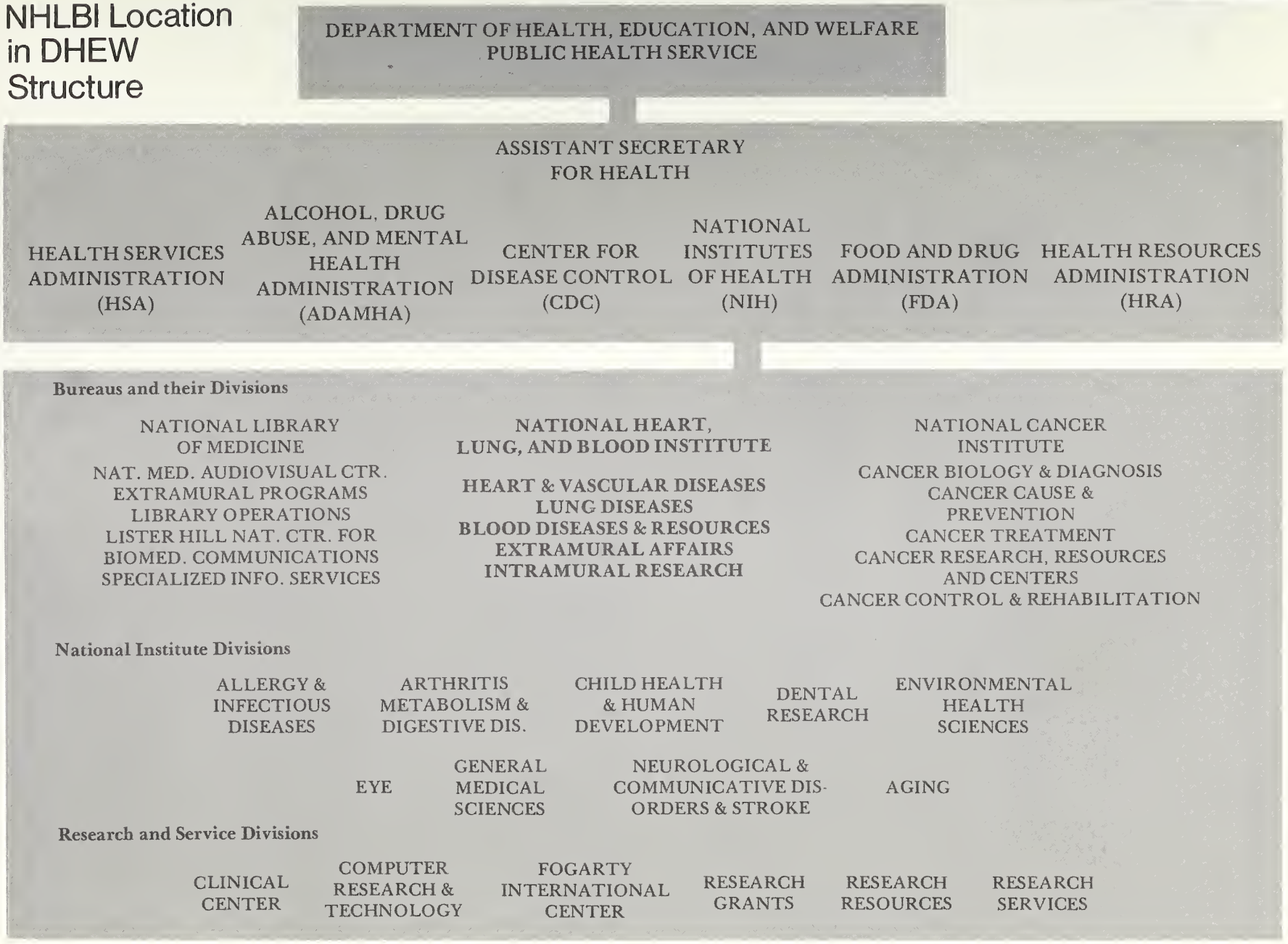
methods of prevention, diagnosis, and treatment; and 3) to supply a training source for scientists and physicians concerned with the diseases.

September 16, 1975. Dr. Robert I. Levy is appointed Director of NHLI, succeeding Dr. Theodore Cooper, who was appointed HEW Deputy Assistant Secretary for Health on April 19, 1974, and Dr. Robert L. Ringler, who served as interim Acting Director.

June 25, 1976. Legislation amending the Public Health Service Act (P.L. 94-278) changes the name of the National Heart and Lung Institute to the National Heart, Lung, and Blood Institute and provides for an expansion in blood-related activities within the Institute and throughout the National Heart, Blood Vessel, Lung, and Blood Program.

3. NHLBI Location in DHEW Structure

NHLBI Location in DHEW Structure



4. National Heart, Lung, and Blood Institute Program Structure

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National Heart, Lung, and Blood Institute Program Structure

The National Heart, Lung, and Blood Institute, mindful of the requirements of the National Heart, Blood Vessel, Lung, and Blood Act of 1972 (Public Law 92-423), provides leadership for a national program to attack diseases of the heart, blood vessels, lung, and blood—and problems of blood resources. Accordingly, the Institute plans, conducts, fosters, and supports an integrated and coordinated program of research, investigations, clinical trials, demonstrations, and manpower training.

In direct response to a requirement of the 1972 Act as well as to the need for a planning and operational framework, the Institute has developed a National Program Plan. The Plan, initially developed in 1973, led to the establishment of a rational program structure, and provides a mechanism to continuously monitor, update, and report progress of the Institute's programs. The current program structure consists of 20 elements, as shown in the table below.

NATIONAL HEART, BLOOD VESSEL, LUNG, AND BLOOD PROGRAM STRUCTURE

HEART AND BLOOD VESSEL DISEASES

1. Arteriosclerosis
2. Hypertension
3. Cerebrovascular Disease
4. Coronary Heart Disease
5. Peripheral Vascular Diseases
6. Arrhythmias
7. Heart Failure and Shock
8. Congenital and Rheumatic Heart Diseases
9. Cardiomyopathies and Infections of the Heart
10. Circulatory Assistance

LUNG DISEASES

1. Structure and Function of the Lung
2. Pediatric Pulmonary Diseases
3. Emphysema and Chronic Bronchitis
4. Fibrotic and Immunologic Lung Diseases
5. Respiratory Failure
6. Pulmonary Vascular Diseases

BLOOD DISEASES AND BLOOD RESOURCES

1. Bleeding and Clotting Disorders
2. Disorders of the Red Blood Cell
3. Sickle Cell Disease
4. Blood Resources

Although the NHLBI does not have a direct programmatic focus on diabetes mellitus, it does support diabetes-related investigations. The metabolic effects and cardiovascular consequences of diabetes are studied as aspects of NHLBI-supported investigations focused on atherosclerosis, hypertension, coronary heart disease, peripheral vessel disease, arrhythmias, heart failure, shock, and thrombosis in humans and animals. In addition, epidemiological investigations of coronary heart disease include studies of diabetes as one of the several predisposing risk factors.

Programs of the National Plan are implemented, monitored, and assessed according to a disciplined strategy consisting of an ordered sequence of:

- Acquisition of new knowledge (basic and clinical research)
- Test and evaluation of promising hypotheses (clinical trials)
- Application of existing knowledge (education, demonstration, and control)

Implementation of the National Program according to the above strategy is primarily carried out by the three divisions under the program structure:

- Heart and Blood Vessel Diseases
- Lung Diseases
- Blood Diseases and Resources

HEART AND BLOOD VESSEL DISEASES

Cardiovascular disease is the number one killer in the United States. The estimated cost of cardiovascular disease to Americans during 1974 was $43.5 billion. Approximately one third of these costs are related to medical and hospital expenses, and two thirds are attributable to reduction in work force productivity and loss of

wages. Cardiovascular diseases, from the perspective of the National Program, cause an estimated 38 million days lost from work each year, result in approximately 44 million hospital days annually, and accounted for slightly less than one million deaths during 1975.

Activities of the Heart and Blood Vessel Diseases program are reflective of the National Plan strategy of progressively moving projects from basic research through testing to application, in parallel with prevention and control activities, aimed to eventually reducing morbidity and mortality associated with these diseases. Multidisciplinary programs are supported to unravel the basic causes of diseases through Specialized Centers of Research (SCORs) on a number of disease problems. Application and testing of research results are implemented through the conduct of clinical trials. One such trial is the Aspirin Myocardial Infarction Study, which is seeking to establish the relationship of controlled administration of aspirin and the possible reduction in total mortality in a specific patient population. Prevention and control programs are typified by the National High Blood Pressure Education Program which is aimed at both the non-medical and medical population.

LUNG DISEASES

As covered by the National Program, lung diseases account for an estimated 150,000 deaths each year in the United States, cause approximately 60 million days lost from work, and necessitate about 40 million days of bed restricted activity. In 1974 the estimated economic cost of lung diseases was $19 billion. The NHLBI focuses on three specific approaches of comparable importance and urgency in its study of lung diseases: (1) research on the structure and function of the lung, especially on their interrelatedness, and the relationship between structure and non-ventilatory lung functions; (2) expansion and development of the knowledge base on specific diseases which constitute national health problems (e.g., emphysema and cystic fibrosis); and (3) application of available technical resources to solve specific and immediate problems. As required by legislation, the NHLBI applies not less than 15% of its financial resources to programs related to lung diseases.

BLOOD DISEASES AND BLOOD RESOURCES

Bleeding and clotting abnormalities are a major cause of death and disability in the United States. In addition to supporting research directly related to bleeding and clotting problems (for example, studies aimed at the molecular mechanism of coagulation), the National Program supports and coordinates programs to ensure the availability and accessibility of an adequate and safe supply of blood and blood products whenever and wherever needed. It is estimated that about 9 million to 10 million units of whole blood are collected and used for therapy in the United States. The Act significantly expanded the authority and responsibility of the Institute relating to the management and use of blood and blood products and the management of blood resources of the nation. Legislation requires that not less than 15% of the Institute's financial resources shall be applied toward the programs of blood diseases and blood resources.

INTERAGENCY TECHNICAL COMMITTEE

The National Heart, Lung, and Blood Institute, as part of its responsibility to provide leadership to the National Program, coordinates those aspects of all Federal health programs and activities related to heart, blood vessel, lung, and blood diseases and blood resources. The Institute's coordinating efforts are facilitated both by the informal, but effective, communication and collaborative network among Federal health agencies and by the formal legislated mechanism —the Interagency Technical Committee on Heart, Blood Vessel, Lung, and Blood Diseases and Blood Resources (IATC).

During the past year, the IATC has moved to increase interagency coordination and collaboration by increasing its activities and actively involving not only agency administrators but agency program managers who function at operational levels. As a result, Interagency Working Groups functioning as subcommittees and focusing on specific areas of health problems are now operational. Included among these areas are the following:

- cardiovascular biomedical engineering
- high blood pressure screening
- pediatric pulmonary diseases
- sickle cell disease education
- nutrient composition of foods

The Director of the NHLBI serves as chairman of the IATC. Departments and agencies represented on the Committee are shown in the table below.

MEMBERS OF THE INTERAGENCY TECHNICAL COMMITTEE

AGENCIES OF THE DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE

Alcohol, Drug Abuse, and Mental Health Administration

Center for Disease Control

Food and Drug Administration

Health Resources Administration

Health Services Administration

National Institutes of Health

Social and Rehabilitation Service

Social Security Administration

OTHER DEPARTMENTS AND AGENCIES OF THE FEDERAL GOVERNMENT

Department of Agriculture

Department of Defense

Department of Transportation

Energy Research and Development Administration

National Aeronautics and Space Administration

National Science Foundation

Veterans Administration

5. NHLBI Organizational Structure

The National Heart, Lung, and Blood Institute	22
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The National Heart, Lung, and Blood Institute

The mission of NHLBI is to provide leadership for a national program in diseases of the heart, blood vessels, blood and lungs, and in the use of blood and the management of blood resources.

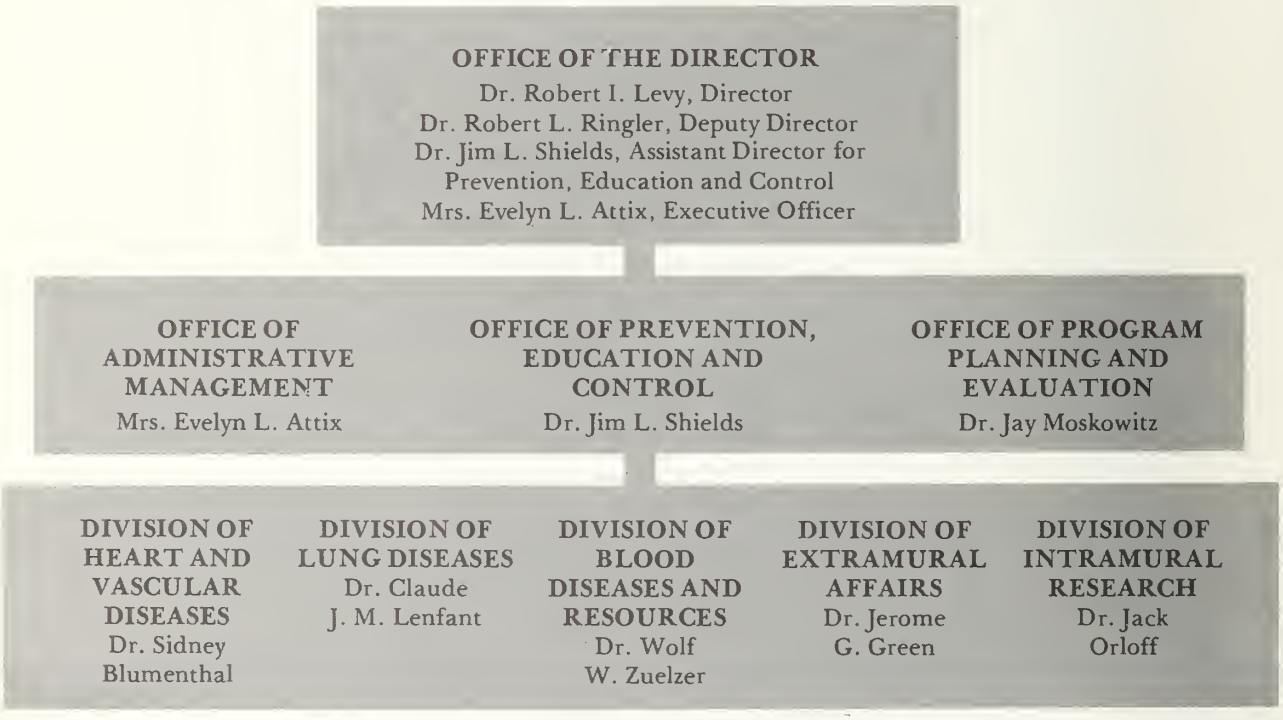
It plans, conducts, fosters and supports an integrated and coordinated program of research, investigations, clinical trials and demonstrations relating to the causes, prevention, methods of diagnosis and treatment (including emergency medical treatment) of heart, blood vessel, lung and blood diseases through research performed in its own laboratories and through contracts and research grants to scientific institutions and to individual scientists.

NHLBI plans and directs research in the development, trial and evaluation of drugs and devices relating to the prevention and treatment of these diseases and the rehabilitation of patients suffering from them.

It conducts studies and research into the clinical use of blood and all aspects of the management of blood resources, and supports training of manpower in fundamental sciences and clinical disciplines for participation in basic and clinical research programs relating to heart, blood vessel, blood and lung diseases.

It coordinates with the other research Institutes and with all Federal agency programs relating to the above diseases, including programs in hypertension, stroke, respiratory distress and sickle cell anemia.

The Institute also conducts educational activities, including the collection and dissemination of educational materials of these diseases, with emphasis on the prevention thereof, for health professionals and the lay public, and maintains continuing relationships with institutions and professional associations and with international, national and state and local officials, and voluntary agencies and organizations working in these areas.


OFFICE OF THE DIRECTOR
Dr. Robert I. Levy, Director
Dr. Robert L. Ringler, Deputy Director
Dr. Jim L. Shields, Assistant Director for Prevention, Education and Control
Mrs. Evelyn L. Attix, Executive Officer
OFFICE OF ADMINISTRATIVE MANAGEMENT
Mrs. Evelyn L. Attix
OFFICE OF PREVENTION, EDUCATION AND CONTROL
Dr. Jim L. Shields
OFFICE OF PROGRAM PLANNING AND EVALUATION
Dr. Jay Moskowitz
DIVISION OF HEART AND VASCULAR DISEASES
Dr. Sidney Blumenthal
DIVISION OF LUNG DISEASES
Dr. Claude J. M. Lenfant
DIVISION OF BLOOD DISEASES AND RESOURCES
Dr. Wolf W. Zuelzer
DIVISION OF EXTRAMURAL AFFAIRS
Dr. Jerome G. Green
DIVISION OF INTRAMURAL RESEARCH
Dr. Jack Orloff

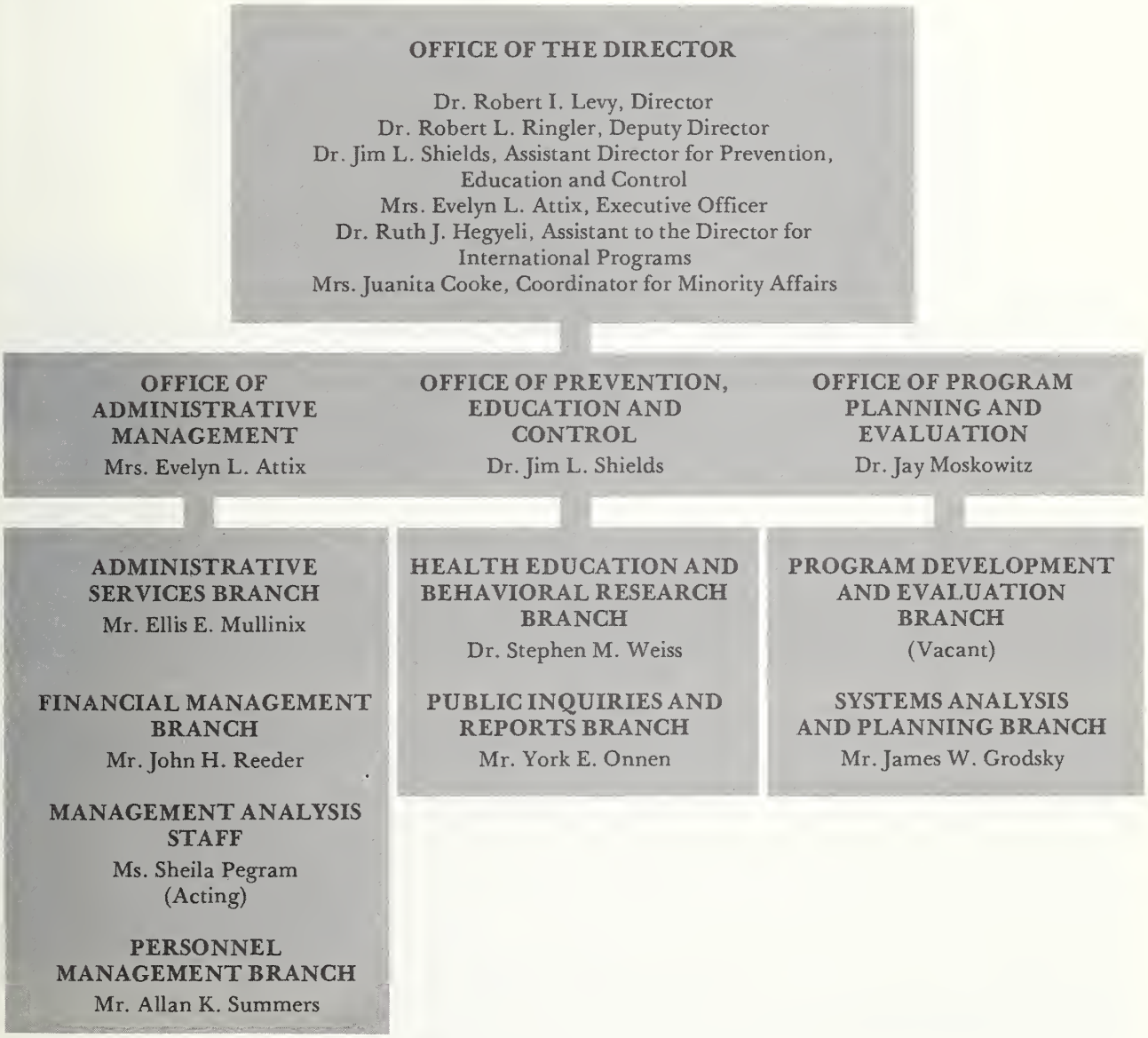
Office of the Director

Develops and provides leadership for the National Heart, Blood Vessel, Lung and Blood Program, including the coordination of all Federal health programs relating to the above diseases as authorized.

Provides overall planning, direction, coordination and evaluation of the Institute's programs.

Collects, develops and disseminates information on the above diseases with emphasis upon factors in their prevention, and conducts and fosters educational programs for scientists and clinicians.

Establishes internal Institute policy for program and administration operations, and maintains surveillance over their execution.

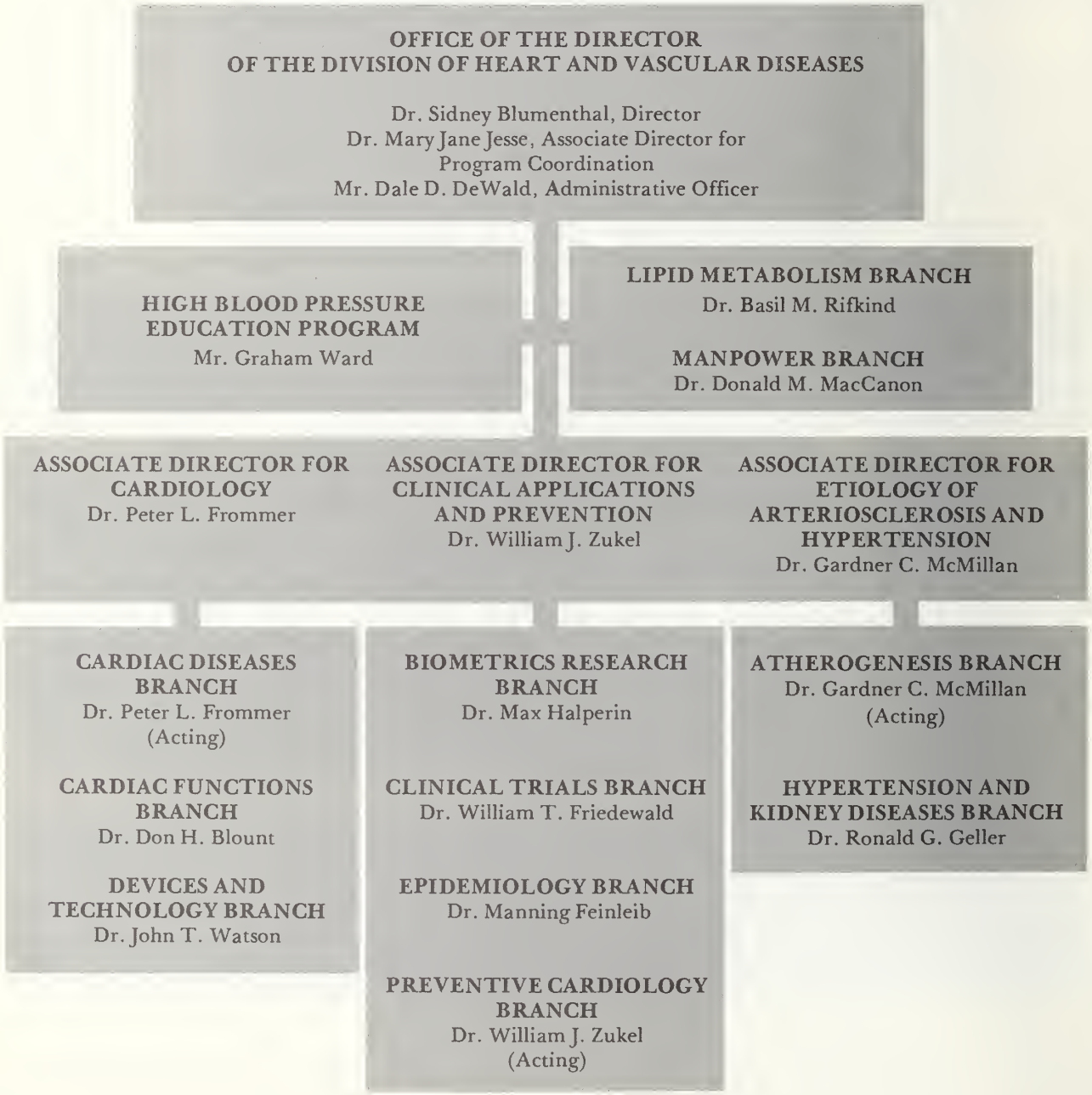

OFFICE OF THE DIRECTOR
Dr. Robert I. Levy, Director
Dr. Robert L. Ringler, Deputy Director
Dr. Jim L. Shields, Assistant Director for Prevention, Education and Control
Mrs. Evelyn L. Attix, Executive Officer
Dr. Ruth J. Hegyeli, Assistant to the Director for International Programs
Mrs. Juanita Cooke, Coordinator for Minority Affairs
OFFICE OF ADMINISTRATIVE MANAGEMENT
Mrs. Evelyn L. Attix
OFFICE OF PREVENTION, EDUCATION AND CONTROL
Dr. Jim L. Shields
OFFICE OF PROGRAM PLANNING AND EVALUATION
Dr. Jay Moskowitz
ADMINISTRATIVE SERVICES BRANCH
Mr. Ellis E. Mullinix
FINANCIAL MANAGEMENT BRANCH
Mr. John H. Reeder
MANAGEMENT ANALYSIS STAFF
Ms. Sheila Pegram (Acting)
PERSONNEL MANAGEMENT BRANCH
Mr. Allan K. Summers
HEALTH EDUCATION AND BEHAVIORAL RESEARCH BRANCH
Dr. Stephen M. Weiss
PUBLIC INQUIRIES AND REPORTS BRANCH
Mr. York E. Onnen
PROGRAM DEVELOPMENT AND EVALUATION BRANCH
(Vacant)
SYSTEMS ANALYSIS AND PLANNING BRANCH
Mr. James W. Grodsky

Division of Heart and Vascular Diseases

Plans and directs the Institute's research grant, contract and training programs in heart and vascular diseases, encompassing basic research, targeted research, clinical trials and demonstrations, national cardiovascular centers, technological development, and application of research findings.

Maintains surveillance over developments in its program area and assesses the national need for research in the cause, prevention, diagnosis and treatment of cardiovascular diseases, technological development, application of research findings, and for manpower training in these areas.

Maintains the necessary scientific management capability to foster and guide an effective attack upon cardiovascular diseases.


OFFICE OF THE DIRECTOR
OF THE DIVISION OF HEART AND VASCULAR DISEASES
Dr. Sidney Blumenthal, Director
Dr. Mary Jane Jesse, Associate Director for Program Coordination
Mr. Dale D. DeWald, Administrative Officer
HIGH BLOOD PRESSURE EDUCATION PROGRAM
Mr. Graham Ward
LIPID METABOLISM BRANCH
Dr. Basil M. Rifkind
MANPOWER BRANCH
Dr. Donald M. MacCanon
ASSOCIATE DIRECTOR FOR CARDIOLOGY
Dr. Peter L. Frommer
ASSOCIATE DIRECTOR FOR CLINICAL APPLICATIONS AND PREVENTION
Dr. William J. Zukel
ASSOCIATE DIRECTOR FOR ETIOLOGY OF ARTERIOSCLEROSIS AND HYPERTENSION
Dr. Gardner C. McMillan
CARDIAC DISEASES BRANCH
Dr. Peter L. Frommer (Acting)
CARDIAC FUNCTIONS BRANCH
Dr. Don H. Blount
DEVICES AND TECHNOLOGY BRANCH
Dr. John T. Watson
BIOMETRICS RESEARCH BRANCH
Dr. Max Halperin
CLINICAL TRIALS BRANCH
Dr. William T. Friedewald
EPIDEMIOLOGY BRANCH
Dr. Manning Feinleib
PREVENTIVE CARDIOLOGY BRANCH
Dr. William J. Zukel (Acting)
ATHEROGENESIS BRANCH
Dr. Gardner C. McMillan (Acting)
HYPERTENSION AND KIDNEY DISEASES BRANCH
Dr. Ronald G. Geller

Division of Lung Diseases

Plans and directs the Institute's research grant, contract and training programs in lung diseases, encompassing basic research, targeted research, clinical trials and demonstrations, national pulmonary centers, technological development, and application of research findings.

Maintains surveillance over developments in its program area and assesses the national need for research in the causes, prevention, diagnosis and treatment of lung diseases, technological development, application of research findings, and for manpower training in these areas.

Maintains the necessary scientific management capability to foster and guide an effective attack upon lung disease.

OFFICE OF THE DIRECTOR
OF THE DIVISION OF LUNG DISEASES

Dr. Claude J. M. Lenfant, Director
Dr. Suzanne S. Hurd, Associate Director for Program Planning and Evaluation
Mrs. Rita Lyons, Administrative Officer

STRUCTURE AND FUNCTION BRANCH	AIRWAYS DISEASES BRANCH	INTERSTITIAL LUNG DISEASES BRANCH	PREVENTION, EDUCATION, AND MANPOWER BRANCH
(Vacant)	Dr. Suzanne S. Hurd (Acting)	Dr. Lynn Blake	Dr. John B. Mathis

Division of Blood Diseases and Resources

Plans and directs the Institute's research grant, contract and training programs in blood diseases and resources, including sickle cell disease, encompassing basic research, targeted research, clinical trials and demonstrations, technological development, and application of research findings.

Maintains surveillance over developments in this program area and assesses the national need for research in the causes, prevention, diagnosis and treatment of blood diseases, technological development, application of research findings, and for manpower training in these areas.

Conducts research and demonstrations to improve the national systems of blood procurement, management and distribution.

Coordinates Federal sickle cell disease activities, and operates a national clearinghouse for information on sickle cell disease.

Maintains the necessary scientific management capability to foster and guide an effective attack upon blood diseases and for the management of blood resources.

OFFICE OF THE DIRECTOR
OF THE DIVISION OF BLOOD DISEASES AND RESOURCES

Dr. Wolf W. Zuelzer, Director
Dr. George N. Eaves, Special Assistant for Blood Research Coordination
Dr. Fann Harding, Special Assistant for Research Training
Mr. John B. Lyons, Administrative Officer

BLOOD DISEASES BRANCH	BLOOD RESOURCES AND TRANSPLANTATION BRANCH	SICKLE CELL DISEASE BRANCH	SPECIAL PROGRAMS BRANCH
Dr. Joseph C. Fratantoni	Dr. Anthony René (Acting)	Dr. Clarice Reid	Dr. Donald G. Therriault

Division of Extramural Affairs

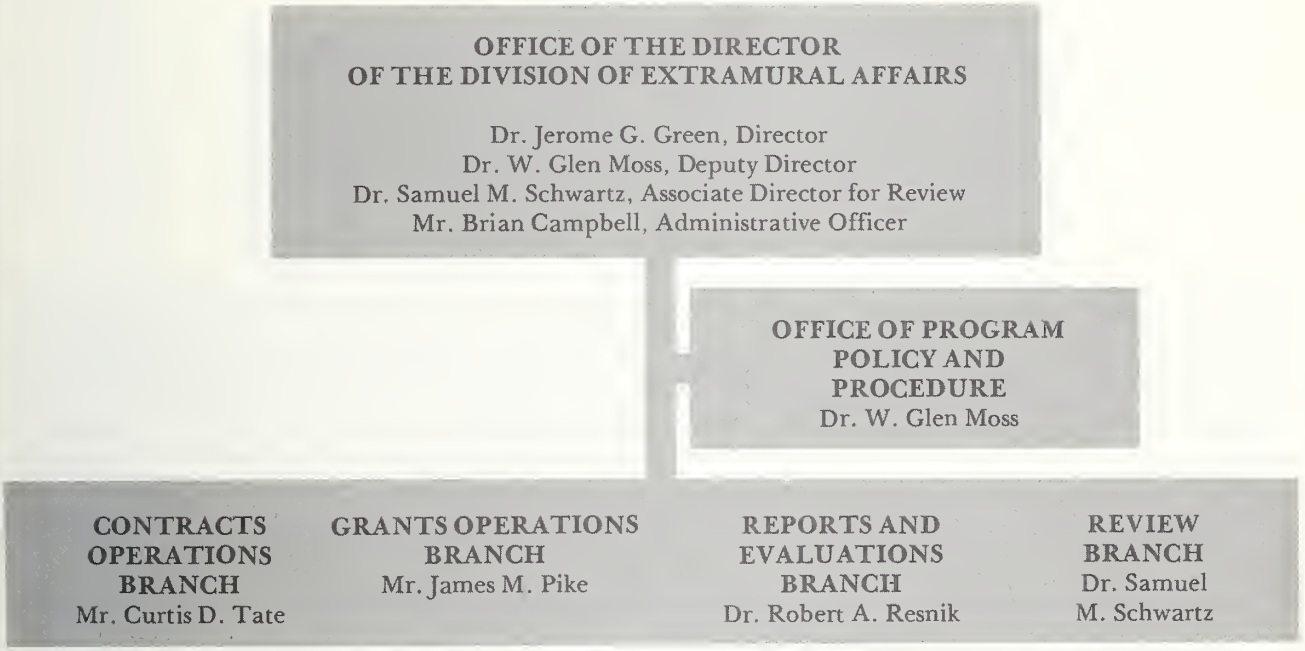
Advises the Director, NHLBI, on research contract, grant and training programs policy.

Represents the Institute on overall NIH extramural and collaborative program policy committees, coordinates such policy within NHLBI, and coordinates the Institute's research grant and training programs with the National Heart, Lung, and Blood Advisory Council.

Provides grant and contract management and processing services to the Institute's program divisions.

Furnishes reports and statistics related to the Institute's grant and contract programs.

Supplies initial scientific merit review of project grants and research contracts for the Institute.


OFFICE OF THE DIRECTOR
OF THE DIVISION OF EXTRAMURAL AFFAIRS
Dr. Jerome G. Green, Director
Dr. W. Glen Moss, Deputy Director
Dr. Samuel M. Schwartz, Associate Director for Review
Mr. Brian Campbell, Administrative Officer
OFFICE OF PROGRAM POLICY AND PROCEDURE
Dr. W. Glen Moss
CONTRACTS OPERATIONS BRANCH
Mr. Curtis D. Tate
GRANTS OPERATIONS BRANCH
Mr. James M. Pike
REPORTS AND EVALUATIONS BRANCH
Dr. Robert A. Resnik
REVIEW BRANCH
Dr. Samuel M. Schwartz

Division of Intramural Research

Plans, conducts, and directs a program of basic laboratory and clinical research in heart, blood vessel, lung, and kidney diseases; certain blood diseases such as sickle cell anemia, hemophilia, hepatitis; and development of technology related to cardiovascular, pulmonary, and hematologic disorders.

Maintains communication with other programs of the Institute to facilitate early practical application of basic research findings. Areas of major interest are the biology of experimental and clinical arteriosclerosis and its manifestations; the pathophysiology of hypertensive vascular disease; functions of the lung; clinical and experimental studies on physiological and pharmacological aspects of heart, blood, and lung diseases; and a broad program of other basic research and technical developments related to them.

OFFICE OF THE DIRECTOR
OF THE DIVISION OF INTRAMURAL RESEARCH

Dr. Jack Orloff, Director
Dr. Harry Keiser, Clinical Director
Mr. Richard P. Striker, Administrative Officer

CARDIOLOGY BRANCH Dr. Stephen E. Epstein	**PATHOLOGY BRANCH** Dr. William C. Roberts	**LABORATORY OF BIOCHEMISTRY** Dr. Earl R. Stadtman	**LABORATORY OF CHEMISTRY** Dr. Henry M. Fales
HYPERTENSION-ENDOCRINE BRANCH Dr. Frederic C. Bartter	**PULMONARY BRANCH** Dr. Ronald G. Crystal	**LABORATORY OF CELL BIOLOGY** Dr. Edward Korn	**LABORATORY OF EXPERIMENTAL ATHEROSCLEROSIS** Dr. Donald L. Fry
MOLECULAR DISEASES BRANCH Dr. Bryan Brewer	**SURGERY BRANCH** Dr. Andrew G. Morrow	**LABORATORY OF CELLULAR METABOLISM** Dr. Martha Vaughan	**LABORATORY OF KIDNEY AND ELECTROLYTE METABOLISM** Dr. Maurice B. Burg
MOLECULAR HEMATOLOGY BRANCH Dr. W. French Anderson	**LABORATORY OF BIOCHEMICAL GENETICS** Dr. Marshall W. Nirenberg	**LABORATORY OF CHEMICAL PHARMACOLOGY** Dr. James R. Gillette	**LABORATORY OF TECHNICAL DEVELOPMENT** Dr. Robert L. Bowman

6. Disease Statistics

Ten Leading Causes of Death 30
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Death Rates for Cardiovascular Diseases (and Major Components) and Non-Cardiovascular Diseases 32
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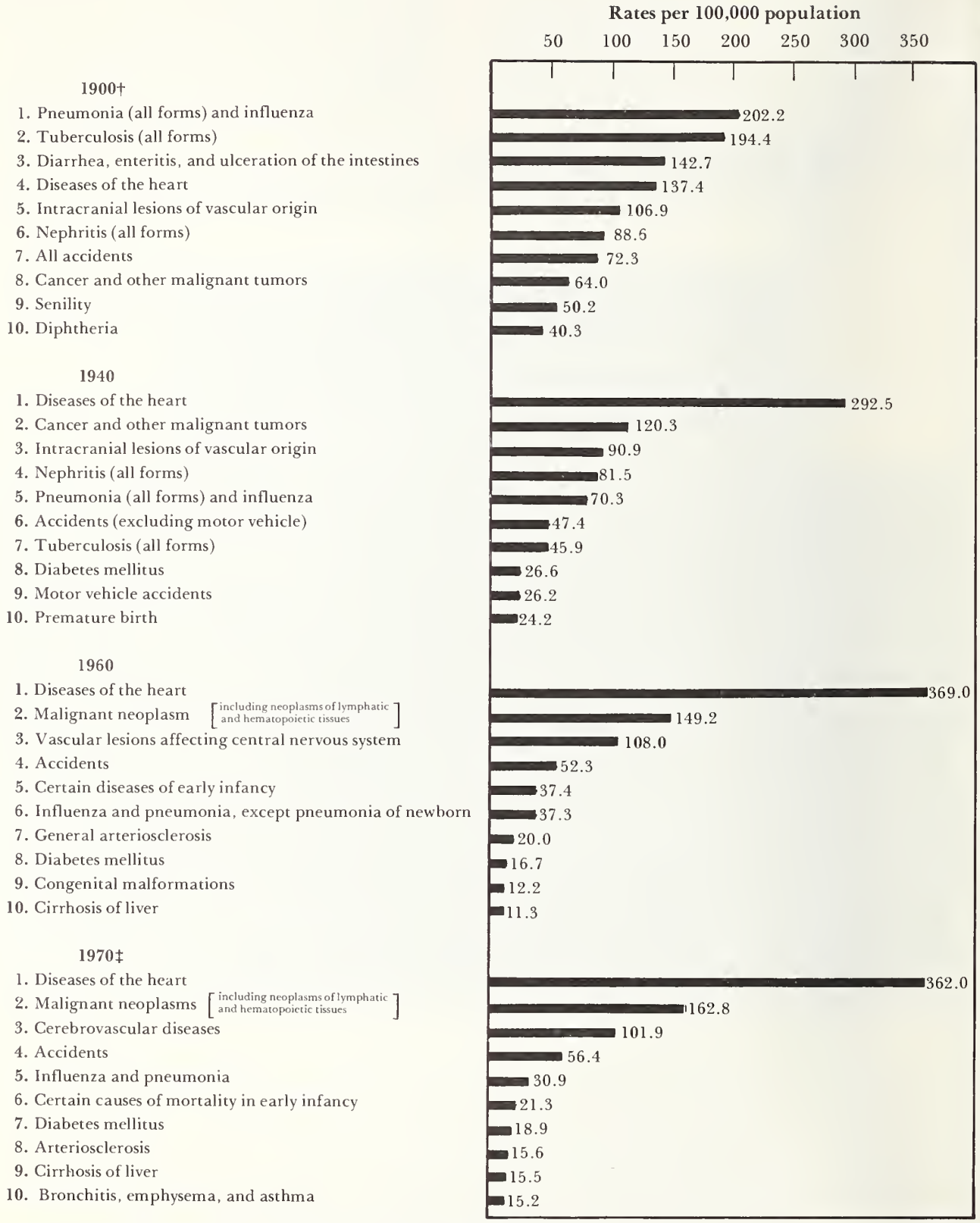
Ten Leading Causes of Death*

UNITED STATES, 1900, 1940, 1960, 1970, 1974



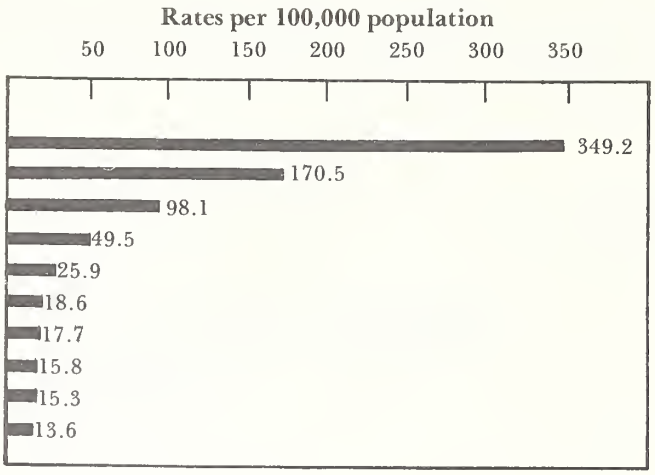
*Terminology is that used in the edition of International List of Causes of Death in effect at that time.

†Source: *Vital Statistics Rates in the United States 1900, 1960,* National Center for Health Statistics, PHS Pub. No. 1677.

‡Source: *Monthly Vital Statistics Report,* Vol. 22, No. 11 (Feb. 22, 1974), NCHS.

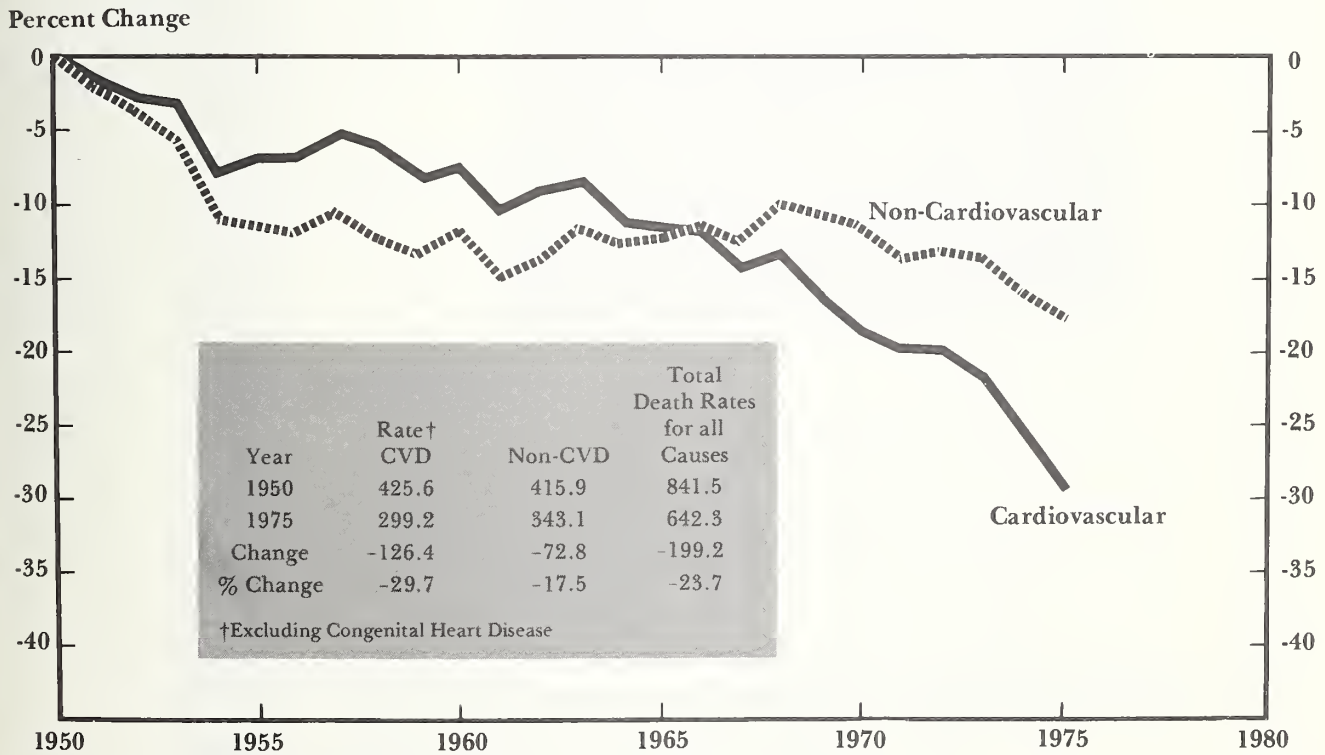
1974*

1. Diseases of the heart
2. Malignant neoplasms [including neoplasms of lymphatic and hematopoietic tissues]
3. Cerebrovascular diseases
4. Accidents
5. Influenza and pneumonia
6. Chronic obstructive pulmonary diseases†
7. Diabetes mellitus
8. Cirrhosis of the liver
9. Arteriosclerosis
10. Certain causes of mortality in early infancy



*Source: *Monthly Vital Statistics Report,* Vol. 24, No. 11 (Feb. 3, 1976), NCHS.
†This category supplants "Bronchitis, Emphysema, or Asthma" and anticipates the use of "Chronic obstructive pulmonary diseases" in the ninth revision of the *International Classification of Diseases,* due to current increase in use on death certificates of the term "COPD" rather than a specific disease term.

Percent Decline in Death Rates* Since 1950 for Cardiovascular and Non-Cardiovascular Diseases



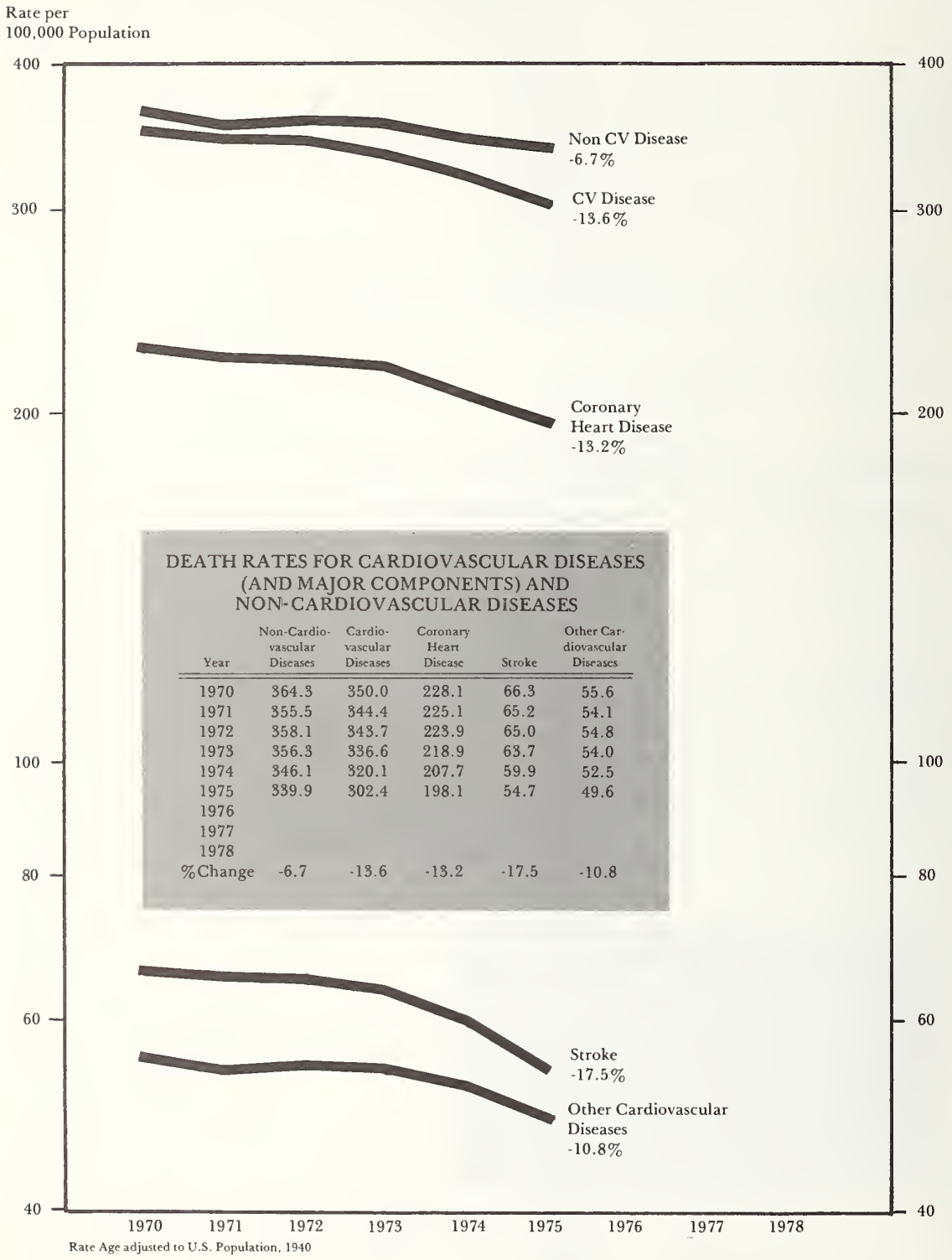
Year	Rate† CVD	Non-CVD	Total Death Rates for all Causes
1950	425.6	415.9	841.5
1975	299.2	343.1	642.3
Change	-126.4	-72.8	-199.2
% Change	-29.7	-17.5	-23.7

†Excluding Congenital Heart Disease

*Age adjusted to the U.S. Population, 1940

Death Rates for Cardiovascular Diseases (and Major Components) and Non-Cardiovascular Diseases

UNITED STATES, 1970 - 1975



DEATH RATES FOR CARDIOVASCULAR DISEASES (AND MAJOR COMPONENTS) AND NON-CARDIOVASCULAR DISEASES

Year	Non-Cardiovascular Diseases	Cardiovascular Diseases	Coronary Heart Disease	Stroke	Other Cardiovascular Diseases
1970	364.3	350.0	228.1	66.3	55.6
1971	355.5	344.4	225.1	65.2	54.1
1972	358.1	343.7	223.9	65.0	54.8
1973	356.3	336.6	218.9	63.7	54.0
1974	346.1	320.1	207.7	59.9	52.5
1975	339.9	302.4	198.1	54.7	49.6
1976					
1977					
1978					
%Change	-6.7	-13.6	-13.2	-17.5	-10.8

Rate Age adjusted to U.S. Population, 1940

Total Economic Cost—1972

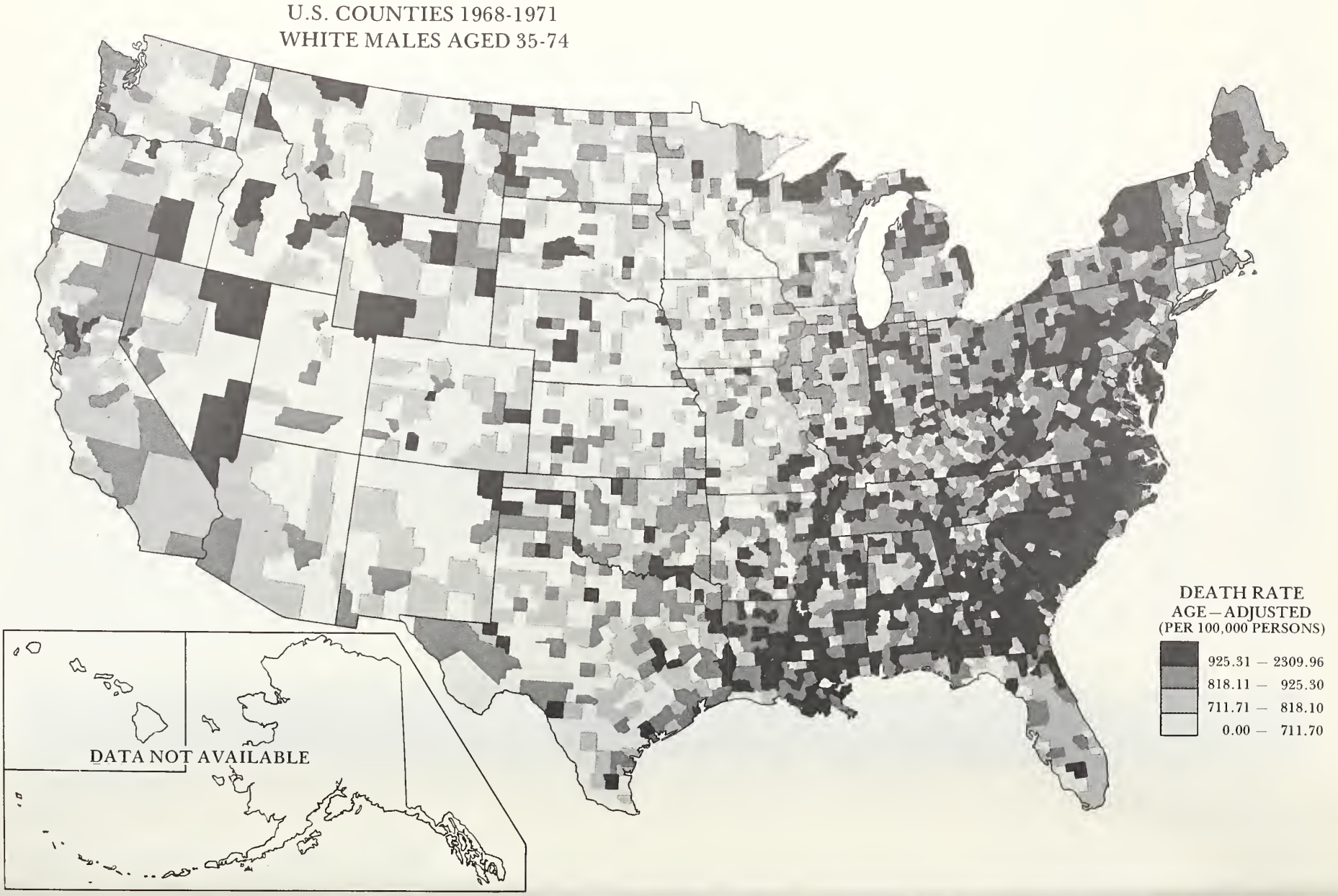
Amount and Percentage Distribution

(Estimated Direct Expenditures, Indirect Costs of Morbidity, and Present Value of Lifetime Earnings Discounted at 4 Percent, by Diagnosis)

Diagnosis	Amount ($ Millions)				Percentage Distribution			
	Total	Direct Costs	Indirect Costs		Total	Direct Costs	Indirect Costs	
			Morbidity	Mortality			Morbidity	Mortality
Infective and parasitic diseases	$ 3,443	$ 1,412	$ 1,200	$ 831	1.8	1.9	2.8	1.2
Neoplasms	17,367	3,872	862	12,633	9.2	5.1	2.0	17.7
Endocrine, nutritional, and metabolic diseases	5,930	3,436	1,137	1,357	3.1	4.6	2.7	1.9
Diseases of the blood and blood-forming organs	921	491	220	210	0.5	0.7	0.5	0.3
Mental disorders	13,917	6,985	6,179	753	7.4	9.3	14.6	1.1
Diseases of the nervous system and sense organs	10,951	5,947	3,944	1,060	5.8	7.9	9.3	1.5
Diseases of the circulatory system	**40,060**	**10,919**	**6,417**	**22,724**	**21.2**	**14.5**	**15.2**	**31.9**
Diseases of the respiratory system	**16,454**	**5,931**	**7,089**	**3,434**	**8.7**	**7.9**	**16.7**	**4.8**
Diseases of the digestive system	17,487	11,100	2,606	3,781	9.3	14.8	6.2	5.3
Diseases of the genitourinary system	6,456	4,471	1,249	736	3.4	5.9	3.0	1.0
Complications of pregnancy, childbirth, and the puerperium	2,932	2,607	245	80	1.6	3.5	0.6	0.1
Diseases of the skin and subcutaneous tissue	2,052	1,525	460	67	1.1	2.0	1.1	0.1
Diseases of the musculoskeletal system and connective tissue	8,948	3,636	5,103	209	4.7	4.8	12.1	0.3
Congenital anomalies	1,903	381	238	1,284	1.0	0.5	0.6	1.8
Accidents, poisonings, and violence	26,678	5,121	3,883	17,674	14.1	6.8	9.2	24.8
Other	13,294	7,398	1,494	4,402	7.0	9.8	3.5	6.2
Total	$188,789	$75,231	$42,323	$71,235	100.0%	100.0%	100.0%	100.0%

SOURCE: "The Economic Cost of Illness Revisited," Barbara S. Cooper and Dorothy P. Rice, Office of Research and Statistics, Social Security Administration, Presented at American Public Health Association Meetings, Chicago, Ill., November 20, 1975. Table entries are rounded to the nearest thousand dollars and to the nearest tenth of a percent.

Cardiovascular Disease Mortality in the United States



7. Councils and Committees

National Heart, Lung, and Blood Advisory Council 36
Public Advisory and Review Groups to the NHLBI Divisions 38
Division of Heart and Vascular Diseases 38
Division of Lung Diseases 39
Division of Blood Diseases and Resources 39
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National Heart, Lung, and Blood Advisory Council

Structure

Chairman: The Director, National Heart, Lung, and Blood Institute
Director, National Institutes of Health
Director, National Science Foundation
Chief Medical Officer, Veterans Administration
Eighteen members appointed by the Secretary, Department of Health, Education, and Welfare:

- Eleven appointed members are to be leading medical or scientific authorities.
- Two are selected from persons enrolled in medical residency programs.
- Five are members of the general public who are leaders in fundamental or medical sciences, or in public affairs.

Members are appointed for overlapping terms of four years.

Functions

Reviews applications for grants-in-aid relating to research projects in the field of heart, blood vessel, lung, and blood diseases and in the field of blood resources, and recommends to the Director, NIH, the approval of those projects which merit support.

Advises the Secretary, DHEW, and the Directors of NIH and NHLBI on matters relating to the causes, prevention, and methods of diagnosis and treatment of these diseases and resources.

Collects information as to studies being carried on in the US and abroad relating to these diseases and resources, and makes such information available.

Makes recommendations to the Director, NIH, regarding the acceptance of conditional gifts pursuant to Section 501 of the PHS Act.

Counsels and assists the Director, NHLBI, regarding the National Heart, Blood Vessel, Lung, and Blood Disease Program, and submits a yearly report to the President for transmittal to the Congress on the progress of the program objectives.

Recommends areas of research to be supported by the awarding of contracts. Also recommends the percentage of the Institute's budget which should be expended for such contracts.

Meetings

Meetings are convened by the Chairman, but not fewer than four times a year. The Chairman will approve the agenda.

Membership*

Dr. Giulio J. Barbero (1976)
Professor and Chairman
Department of Child Health
School of Medicine
University of Missouri
Columbia, Missouri 65201

Dr. Eugene Braunwald (1978)
Hersey Professor and Head
Department of Medicine
Harvard Medical School at the
Peter Bent Brigham Hospital
Boston, Massachusetts 02115

Mrs. Mabel E. Cason (1977)
Assistant Personnel Director
St. Paul Board of Education
St. Paul, Minnesota 55102

Dr. Michael E. DeBakey (1977)
President
Baylor College of Medicine
Houston, Texas 77030

Dr. Marion Dugdale (1977)
Professor, Department of Medicine
College of Medicine
University of Tennessee
Memphis, Tennessee 38163

Dr. Harriet P. Dustan (1976)
Vice Chairman, Research Division
Cleveland Clinic Foundation
Cleveland, Ohio 44106

Dr. John W. Eckstein (1977)
Dean, College of Medicine
University of Iowa
Iowa City, Iowa 52242

*Current as of October 1, 1976.

Dr. Barry A. Gray (1976)
Assistant Professor of Medicine
University of Oklahoma
Oklahoma City, Oklahoma 73190

Dr. Gareth M. Green (1979)
Professor and Chairman
Department of Environmental Health Sciences
School of Hygiene and Public Health
Johns Hopkins University
Baltimore, Maryland 21205

Dr. Millicent Higgins (1979)
Professor, Department of Epidemiology
School of Public Health
University of Michigan
Ann Arbor, Michigan 48109

Dr. Thomas N. James (1979)
Chairman
Department of Medicine
University of Alabama Medical Center
Birmingham, Alabama 35294

Dr. Betty Jean Kennedy (1979)
Hospitals and Clinics
University of Oregon
Portland, Oregon 97201

Dr. Yutaka Kikkawa (1976)
Professor and Chairman
Department of Pathology
New York Medical College
Valhalla, New York 10595

Mr. Ira L. Lavin (1978)
Executive Vice President
KXIV, Inc.
Phoenix, Arizona 85012

Mr. Jose A. Morales (1978)*
Vice President for Student Affairs
Northeastern Illinois University
Chicago, Illinois 60625

Mrs. Mary R. Ripley (1976)
700 North Bundy Drive
Los Angeles, California 90049

*Resigned effective September 1, 1976
**Deceased

Dr. Richard S. Ross (1978)
Vice President of the Health Divisions and
Dean of the Medical Faculty
Johns Hopkins University
Baltimore, Maryland 21205

Mr. Taft B. Schreiber (1979)**
Director, MCA, Inc.
Universal City Plaza
Universal City, California 91608

Dr. Robert I. Levy, *Chairman*
Director
National Heart, Lung, and Blood Institute
Bethesda, Maryland 20014

Dr. Jerome G. Green
Executive Secretary
Director, Division of Extramural Affairs
National Heart, Lung, and Blood Institute
Bethesda, Maryland 20014

EX OFFICIO

Dr. John D. Chase
Chief Medical Director
Veterans Administration
Washington, D.C. 20420

Chief Medical Director's designee:
Dr. Thomas F. Newcomb
Assistant Chief Medical Director
Research and Development
Veterans Administration
Washington, D.C. 20420

Dr. William P. Baker
Captain, MC, USN
Head, Cardiology Disease Branch
National Naval Medical Center
Bethesda, Maryland 20014

Dr. David Mathews
Secretary of Health, Education, and Welfare
Washington, D.C. 20201

Dr. Richard Atkinson
Acting Director
National Science Foundation
Washington, D.C. 20550

Director's designee:
Dr. Robert Rabin
Executive Assistant
Directorate for Biological,
Behavioral, and Social Sciences
National Science Foundation
Washington, D.C. 20550

Dr. Donald S. Fredrickson
Director
National Institutes of Health
Bethesda, Maryland 20014

Public Advisory and Review Groups to the NHLBI Divisions

Division of Heart and Vascular Diseases

ARTERIOSCLEROSIS AND HYPERTENSION ADVISORY COMMITTEE (12 members)

Chairman: Dr. Theodore L. Goodfriend, Associate Chief of Staff for Research, Veterans Administration Hospital, Madison, Wisconsin 53705

Executive Secretary: Dr. Gardner C. McMillan, Associate Director for Etiology of Arteriosclerosis and Hypertension, Division of Heart and Vascular Diseases, NHLBI

Advises the Secretary, DHEW, and the Directors, NIH and the Division of Heart and Vascular Diseases, NHLBI, on planning, execution, and evaluation of the Institute's extramural programs, including those relating to grants, contracts, and specialized centers of research in the general areas of the etiology of arteriosclerosis and of hypertension. Advises and assists in scientific design and review of current programs and identifies and evaluates future research opportunities and programs in the areas of the etiology of arteriosclerosis and of hypertension.

CARDIOLOGY ADVISORY COMMITTEE (16 members)

Chairman: Dr. T. Joseph Reeves, Cardiology Associates, P.A., Beaumont, Texas 77701

Executive Secretary: Dr. Peter L. Frommer, Associate Director for Cardiology, Division of Heart and Vascular Diseases, NHLBI

Advises the Secretary, DHEW, and the Directors, NIH and the Division of Heart and Vascular Diseases, NHLBI, on planning, execution, and evaluation of the Institute's extramural programs, including those related to grants, contracts, and specialized centers of research in the general area of cardiology, including cardiac disease, cardiovascular function, and relevant technological developments. Advises and assists in scientific design and review of current programs.

CLINICAL APPLICATIONS AND PREVENTION ADVISORY COMMITTEE (12 members)

Chairman: Dr. William Insull, Jr., Adjunct Associate Professor of Arteriosclerosis, Rockefeller University, New York, New York 10021

Executive Secretary: Dr. William J. Zukel, Associate Director for Clinical Applications and Prevention, Division of Heart and Vascular Diseases, NHLBI

Advises the Secretary, DHEW, and the Directors, NIH and the Division of Heart and Vascular Diseases, NHLBI, on policy matters relating to the epidemiological and biometrics research programs, clinical trials and preventive cardiology programs and appraises ongoing studies in this area. Evaluates ongoing contracts, grants, and reimbursable agreements for scientific content and program relevance. Identifies research opportunities and needs for prevention and application of knowledge for the control of heart and vascular disease.

LIPID METABOLISM ADVISORY COMMITTEE (12 members)

Chairman: Dr. Harold J. Fallon, Chairman, Department of Medicine, Medical College of Virginia, Virginia Commonwealth University, Richmond, Virginia 23298

Executive Secretary: Dr. Basil Rifkind, Chief, Lipid Metabolism Branch, Division of Heart and Vascular Diseases, NHLBI

Advises the Directors, NIH and the Division of Heart and Vascular Diseases, NHLBI, on the scientific design and review of the current programs of the Lipid Metabolism Branch. Reviews contract proposals for scientific content and program relevance, and identifies and evaluates future research opportunities and programs in lipid metabolism.

Division of Lung Diseases

PULMONARY DISEASES ADVISORY COMMITTEE (16 members)

Chairman: Dr. Matthew B. Divertie, Consultant, Division of Thoracic Diseases, Department of Medicine, Mayo Medical School, Rochester, Minnesota 55901

Executive Secretary: Dr. Malvina Schweizer, Special Assistant to the Director, Division of Lung Diseases, NHLBI

Provides advice to the Directors, NIH and the Division of Lung Diseases, NHLBI, on aims, progress, and productivity of goal-oriented programs of the Institute such as Pulmonary Specialized Centers of Research, Research and Demonstration Centers, and research contracts. Identifies research opportunities and evaluates current and future program needs in the pulmonary disease area.

Division of Blood Diseases and Resources

BLOOD DISEASES AND RESOURCES ADVISORY COMMITTEE (18 members)

Chairman: Dr. Clement A. Finch, Head, Division of Hematology, University of Washington School of Medicine, Seattle, Washington 98195

Executive Secretary: Dr. Fann Harding, Special Assistant to the Director, Division of Blood Diseases and Resources, NHLBI

Advises the Secretary, DHEW, and the Director, NIH, on long-range goals; reviews program proposals; identifies research opportunities; and makes recommendations to the Director, Division of Blood Diseases and Resources, NHLBI, regarding plans for program development and implementation. Assesses programs and evaluates ongoing programs in relation to goals.

SICKLE CELL DISEASE ADVISORY COMMITTEE (11 members)

Chairman: Dr. Edmund Casey, Private Practice, 437 Melish Avenue, Cincinnati, Ohio 45229

Executive Secretary: Mr. Howard F. Manly, Special Assistant to the Chief, Sickle Cell Disease Branch, Division of Blood Diseases and Resources, NHLBI

Advises the Secretary, DHEW, or his designee, on the sickle cell disease program and on suggested priorities within that program. Also makes recommendations concerning the planning, execution, and evaluation of all aspects of the program.

Division of Extramural Affairs

CLINICAL TRIALS REVIEW COMMITTEE (6 members)

Chairman: Dr. Maureen Henderson, Assistant Vice President for Health Affairs, Health Sciences Center, University of Washington, Seattle, Washington 98195

Executive Secretary: Dr. Earl W. Gardner, Review Branch, Division of Extramural Affairs, NHLBI

Provides technical advice to the Directors, NIH and NHLBI, and to the National Heart, Lung, and Blood Advisory Council, including initial review of applications for the support of studies for the evaluation of preventive or therapeutic measures in blood, cardiovascular, or lung diseases, particularly through cooperative studies or controlled clinical trials. Provides scientific merit review for such studies seeking grant or contract support from the NHLBI.

COMPREHENSIVE SICKLE CELL CENTERS AD HOC REVIEW COMMITTEE (18 members)

Chairman: Dr. Jean L. Cook, Associate Professor, Department of Medicine, Albert Einstein, College of Medicine, Yeshiva University, Bronx, New York 10461

Executive Secretary: Dr. Michael Oxman, Review Branch, Division of Extramural Affairs, NHLBI

Provides technical advice to the Directors, NIH and NHLBI, and to the National Heart, Lung, and Blood Advisory Council concerning scientific merit review of competing Comprehensive Sickle Cell Center grant applications.

HEART, LUNG, AND BLOOD RESEARCH REVIEW COMMITTEE A (16 members)

Chairman: Dr. Francis J. Klocke, Professor of Medicine and Chief, Division of Cardiology, School of Medicine, State University of New York, Buffalo, New York 14215

Executive Secretary: Dr. Arthur W. Merrick, Chief, Program Projects Review Section, Review Branch, Division of Extramural Affairs, NHLBI

In areas relating to the fundamental processes and diseases of the heart and lungs, reviews program project grant applications, other grants-in-aid, and contract proposals for the support of programs of multidisciplinary basic and clinical research. Provides technical advice to the National Heart, Lung, and Blood Advisory Council and to the Director, NHLBI.

HEART, LUNG, AND BLOOD RESEARCH REVIEW COMMITTEE B (16 members)

Chairman: Dr. Yale R. Nemerson, Professor of Medicine, Department of Medicine, School of Medicine, State University of New York, Stony Brook, New York 11794

Executive Secretary: Dr. Henry G. Roscoe, Review Branch, Division of Extramural Affairs, NHLBI

In areas relating to the fundamental processes and diseases of blood vessels and blood and to blood banking and resources, reviews program project grant applications, other grants-in-aid, and contract proposals for the support of programs of multidisciplinary basic and clinical research. Provides technical advice to the National Heart, Lung, and Blood Advisory Council and to the Director, NHLBI.

PULMONARY YOUNG INVESTIGATORS GRANT COMMITTEE (12 members)

Chairman: Dr. Philip Kimbel, Professor, Department of Internal Medicine, School of Medicine, Temple University, Philadelphia, Pennsylvania 19140

Executive Secretary: Dr. Robert C. Stroud, Review Branch, Division of Extramural Affairs, NHLBI

Reviews applications for grants-in-aid for support of young investigator pulmonary research programs, and provides technical advice to the National Heart, Lung, and Blood Advisory Council and to the Directors, NIH and NHLBI.

Division of Intramural Research

BOARD OF SCIENTIFIC COUNSELORS

Advises the Director, NIH, the Director, NHLBI, and the Director, Division of Intramural Research, on the intramural research programs.

Dr. S. Marsh Tenney, *Chairman*
Professor and Chairman
Department of Physiology
Dartmouth Medical School
Hanover, New Hampshire 03755

Dr. Jack Orloff, *Executive Secretary*
Director, Division of Intramural Research
National Heart, Lung, and Blood Institute

Dr. Francis P. Chinard
Professor of Experimental Medicine
Department of Medicine
New Jersey Medical School
College of Medicine and Dentistry
of New Jersey
Newark, New Jersey 07103

Dr. Richard J. Havel
Director, Cardiovascular Research Institute
University of California
San Francisco, California 94143

Dr. John H. Laragh
Masters Professor of Medicine
Director, Hypertension Center and
Cardiovascular Center
New York Hospital
Cornell Medical Center
525 East 68th Street
New York, New York 10021

Dr. Mary Jane Osborn
Professor of Microbiology
Department of Microbiology
University of Connecticut Health Center
Farmington, Connecticut 06032

Dr. Ora M. Rosen
Professor of Medicine and Molecular Biology
Albert Einstein College of Medicine
Yeshiva University
1300 Morris Park Avenue
Bronx, New York 10461

8. Institute Budget Overview

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Budget History of the Institute: Fiscal Years 1950-1977

Dollars in Thousands

FISCAL YEAR	BUDGET ESTIMATE TO CONGRESS	HOUSE ALLOWANCE	SENATE ALLOWANCE	APPROPRIATION	OBLIGATIONS	CUMULATIVE OBLIGATIONS
1950	$ 4,630	$ 11,575	$ 29,117	$ 16,075	$ 15,768	$ 15,768
1951	8,800	8,800	9,400	9,400	8,497	24,265
1952	10,237	10,074	10,156	10,083	9,850	34,115
1953	9,779	9,623	12,000	12,000	11,398	45,513
1954	11,040	12,000	15,418	15,168	14,952	60,465
1955	14,570	16,168	17,168	16,668	16,595	77,060
1956	17,454	17,398	23,976	18,808	18,838	95,898
1957	22,106	25,106	33,396	33,396	32,392	128,290
1958	33,436	33,436	38,784	35,936	35,973	164,263
1959	34,820	36,212	49,529	45,613	45,468	209,731
1960	45,594	52,744	89,500	62,237	61,565	271,296
1961	63,162	71,762	125,166	86,900	86,239	357,535
1962	97,073	105,723	160,000	132,912	110,849	468,384
1963	126,898	143,398	149,498	147,398	120,597	588,981
1964	130,108	129,325	130,545	132,404	117,551	706,532
1965	125,640	124,521	125,171	124,824	124,412	830,944
1966	141,412	146,212	143,462	141,462	141,171	972,115
1967	148,407	154,770	164,770	164,770	164,342	1,136,457
1968	167,954	167,954	177,954	167,954	162,134	1,298,591
1969	169,735	164,120	172,120	166,928	161,834	1,460,425
1970	160,513	160,513	182,000	171,257	160,433	1,620,858
1971	171,747	178,479	203,479	194,901	194,826	1,815,684
1972	195,492	211,624	252,590	232,627	232,577	2,048,261
1973	255,280	300,000	350,000	300,000[1]	255,722	2,303,983
1974	265,000	281,415	320,000	302,915[2]	327,270[3]	2,631,253[3]
1975	309,299	321,196	330,000	327,996[4]	327,953[4]	2,959,206[4]
1976	324,934	329,079[5]	379,059[5]	370,096[6]	368,648	3,327,854
1977	342,855	380,661	420,661	396,661	—	—

[1]Continuing resolution.

[2]The appropriation was reduced by a provision whereby up to 5% of any activity could be withheld. The adjusted appropriation for Fiscal Year 1974 was $289,550,000. This was reduced by transfers to $286,465,000.

[3]Includes $40,990,000 obligated in Fiscal Year 1974 from released Fiscal Year 1973 funds previously impounded.

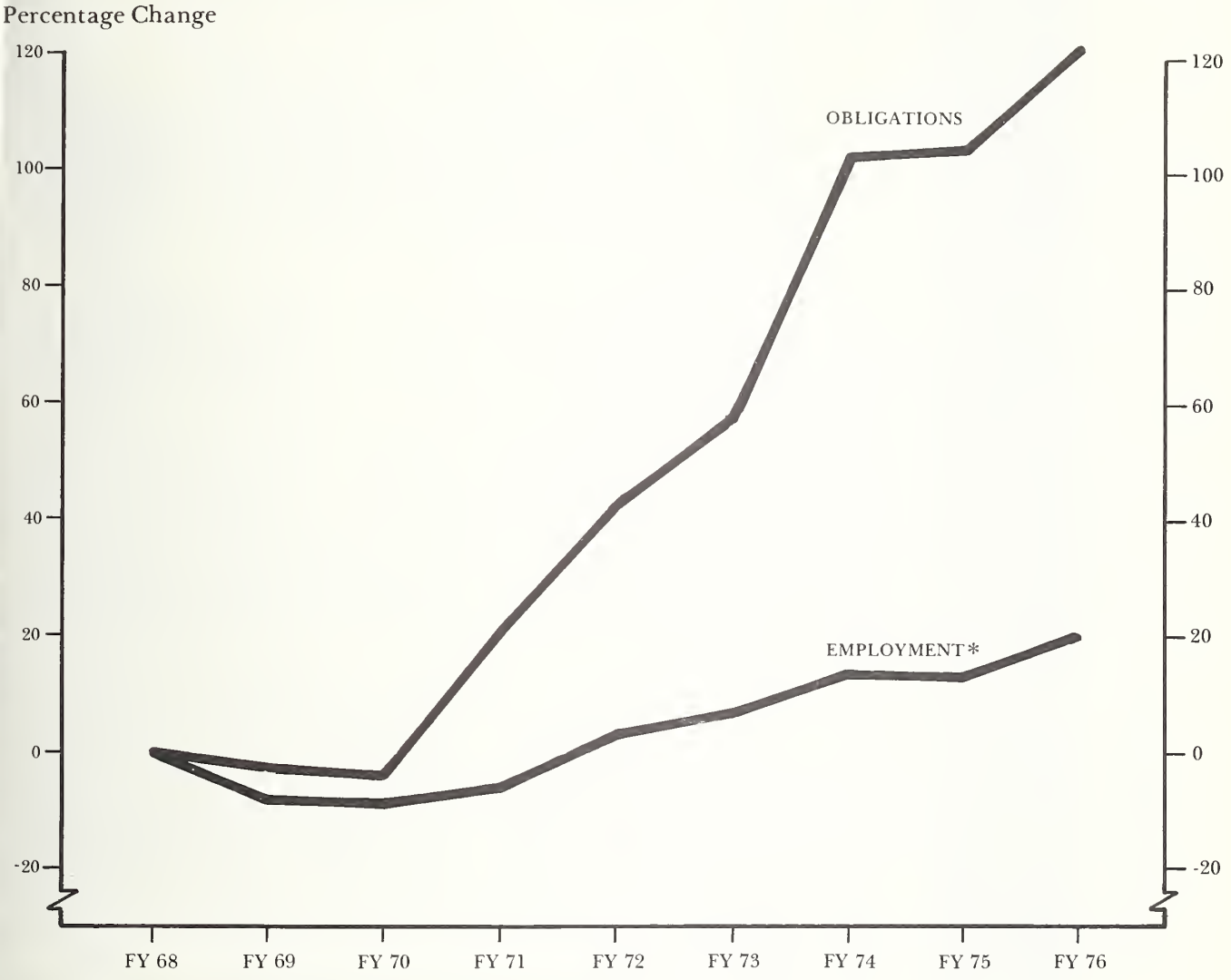
[4]Includes $3,226,907 from released Fiscal Year 1973 funds previously impounded.

[5]Excludes Training and Fellowship Program.

[6]Includes $20,954,000 continuing resolution for Training and Fellowship Program.

Obligations and Employment

Funds and Personnel Change from Fiscal Year 1968 Base



OBLIGATIONS AND EMPLOYMENT
(Dollars in Millions)

FISCAL YEAR	OBLIGATIONS	EMPLOYMENT*
1968	162.1	608
1969	161.8	564
1970	160.4	558
1971	194.8	584
1972	232.6	618
1973	255.7	647
1974	327.3	692
1975	328.0	691
1976	368.6	749

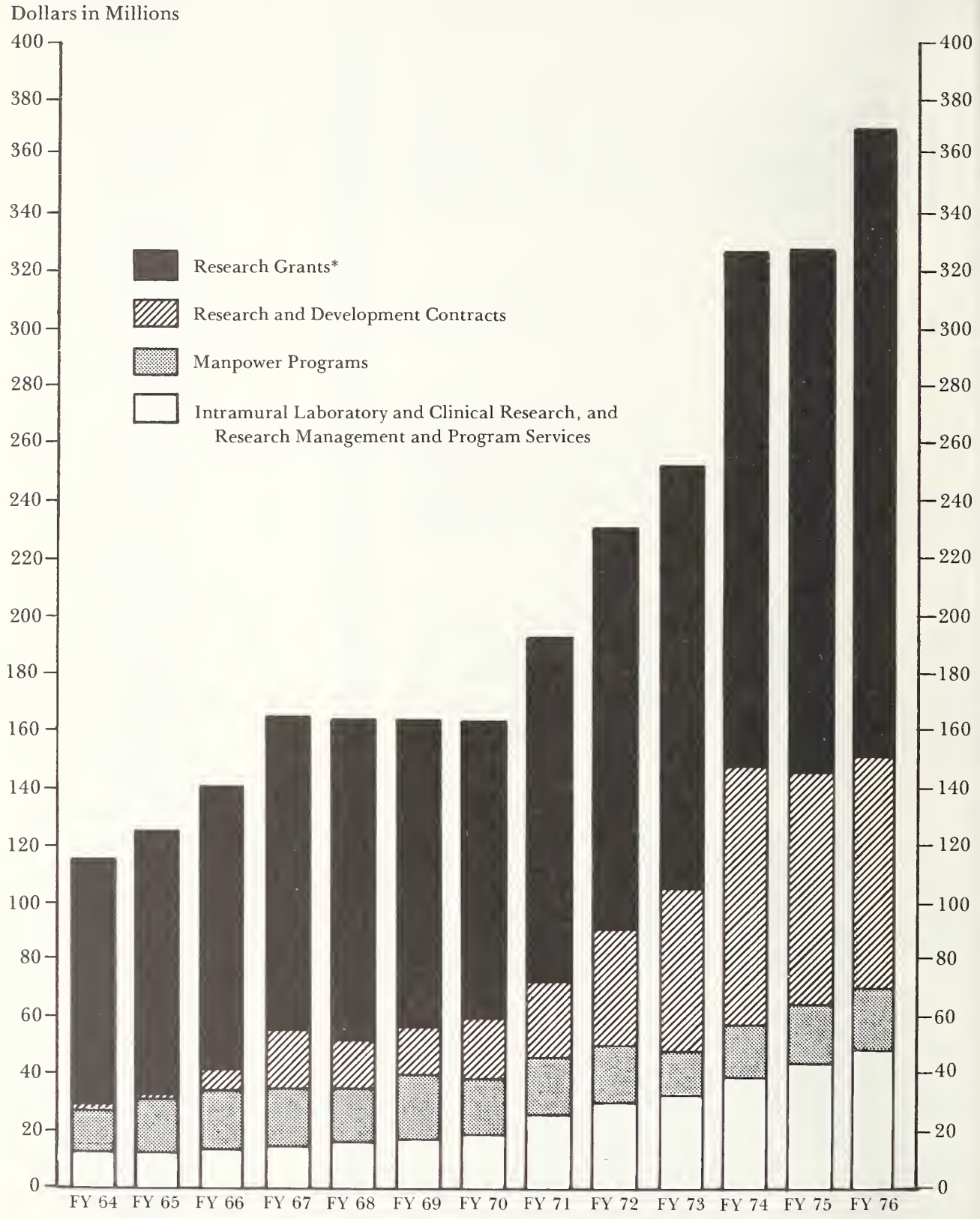
*Full-time permanent employees as of June 30.

NHLBI Grant and Contract Process Model

SUPPORT MECHANISM	INITIATION	PRIMARY REVIEW	SECONDARY REVIEW	AWARD PROCESS	POST AWARD ADMIN-ISTRATION	POST AWARD EVAL-UATION
Regular Research Grants	Individual Investigator or National Heart, Lung, and Blood Institute Request for Application (with Council concurrence)	Division of Research Grants Study Section	National Heart, Lung, and Blood Advisory Council	Grant Award	NHLBI Health Scientist Administrator and Grants Management Specialist	Annual Progress Report
Program Project Grants	Individual or Group of Investigators	Research Review Committee A or B, Division of Extramural Affairs, NHLBI	National Heart, Lung, and Blood Advisory Council	Grant Award	NHLBI Health Scientist Administrator and Grants Management Specialist	Annual Progress Report
National Research Service Awards—Institutional	Program Director	Review Committee, Division of Extramural Affairs, NHLBI	National Heart, Lung, and Blood Advisory Council	Grant Award	NHLBI Health Scientist Administrator and Grants Management Specialist	Annual Progress Report
National Research Service Awards—Individual	Individual	Division of Research Grants Study Section	National Heart, Lung, and Blood Advisory Council	Grant Award (direct check to individual)	NHLBI Health Scientist Administrator and Grants Management Specialist	Annual Progress Report

Pulmonary Academic Awards and Research Career Development Awards	Individual Investigator	Division of Research Grants Study Section	National Heart, Lung, and Blood Advisory Council	Grant Award	NHLBI Health Scientist Administrator and Grants Management Specialist	Annual Progress Report
Specialized Centers of Research, National Research and Demonstration Centers, Special Grant Programs	National Heart, Lung, and Blood Institute Request for Application or Program Announcement (with Council concurrence)	Research Review Committees, Division of Extramural Affairs, NHLBI, or Special Study Section, Division of Research Grants	National Heart, Lung, and Blood Advisory Council	Grant Award	Divisional Advisory Committee, NHLBI Project Officer and Grants Management Specialist	Annual Progress Report and Noncompetitive Site Visit
Research and Development Contracts	Concept Review, National Heart, Lung, and Blood Institute Request for Proposals (with Council concurrence)	Special Technical Review Groups, Division of Extramural Affairs, NHLBI	Program Office Review, Contracting Officer Determination of Competitive Range, Senior NHLBI Staff	Contract Negotiation Contract Award	Divisional Advisory Committee, NHLBI Project Officer and Contracts Management Specialist	Quarterly and Annual Report and Site Visit

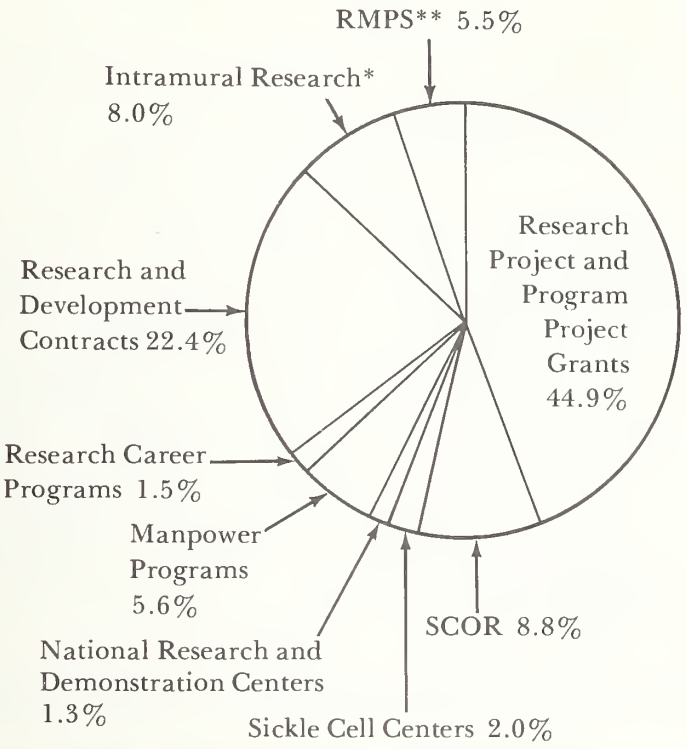
History of NHLBI Obligations by Budget Mechanism: Fiscal Years 1964-1976



*Includes Research Career Program.

NHLBI Obligations by Budget Mechanism: Fiscal Year 1976

Total Fiscal Year 1976 Obligations—$368,648,094


RMPS** 5.5%
Intramural Research* 8.0%
Research Project and Program Project Grants 44.9%
Research and Development Contracts 22.4%
Research Career Programs 1.5%
Manpower Programs 5.6%
SCOR 8.8%
National Research and Demonstration Centers 1.3%
Sickle Cell Centers 2.0%

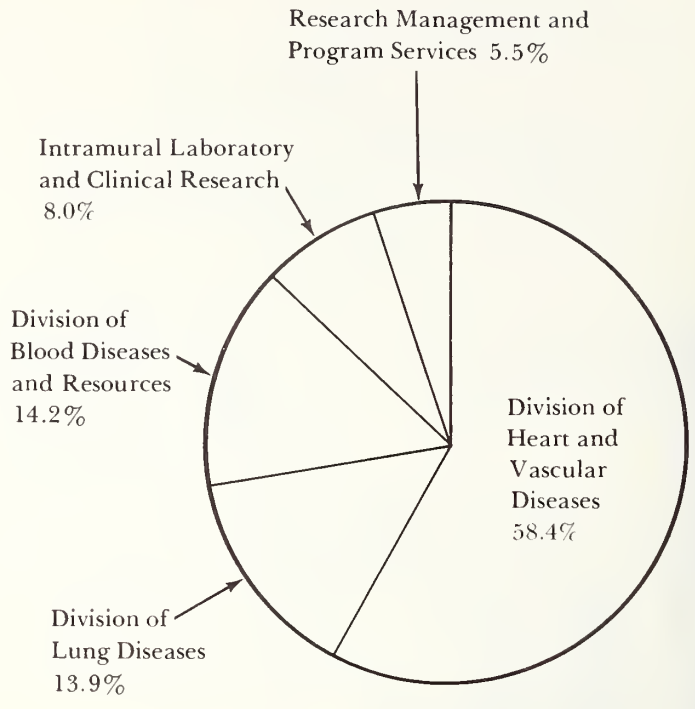
BUDGET MECHANISM	OBLIGATED DOLLARS FY 1976	PERCENT OF TOTAL NHLBI FY 76 BUDGET
Research Project Grants	$112,178,595	30.4
Program Project Grants	53,654,275	14.5
Subtotal	165,832,870	44.9
Specialized Centers of Research (SCOR)	32,311,977	8.8
Sickle Cell Centers	7,557,792	2.0
National Research and Demonstration Centers	4,611,652	1.3
Manpower Programs	20,559,121	5.6
Research Career Programs	5,533,831	1.5
Research and Development Contracts	82,593,004	22.4
Intramural Laboratory and Clinical Research*	29,316,494	8.0
Research Management and Program Services**	20,331,353	5.5
Total, NHLBI	$368,648,094	100.0

*Includes $868,445 for Intramural Research Contracts.

**Includes $574,000 for DRG Scientific Evaluation Grants and $260,100 for Research Management and Program Services Contracts.

NHLBI Obligations by Budget Activity

Total Fiscal Year 1976 Obligations—$368,648,094


Research Management and Program Services 5.5%
Intramural Laboratory and Clinical Research 8.0%
Division of Blood Diseases and Resources 14.2%
Division of Heart and Vascular Diseases 58.4%
Division of Lung Diseases 13.9%

Note: Of total Extramural obligations, Division of Heart and Vascular Diseases is 67.4%, Division of Lung Diseases is 16.0%, and Division of Blood Diseases and Resources is 16.6%.

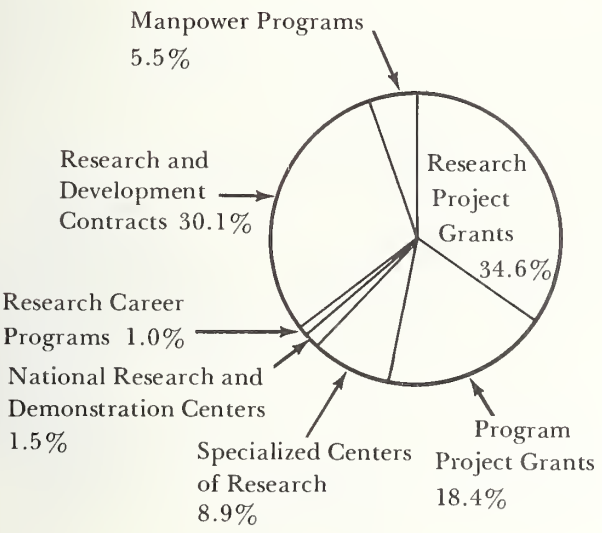
NHLBI Budget Activities: Fiscal Years 1973-1976

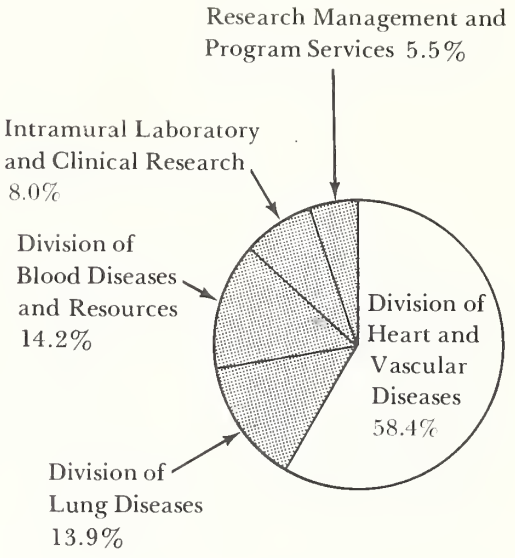
	FY 1973	FY 1974	FY 1975	FY 1976
Division of Heart and Vascular Diseases	$145,148,000	$192,755,179	$189,163,216	$215,314,246
Division of Lung Diseases	28,198,000	44,672,380	44,522,699	51,183,472
Division of Blood Diseases and Resources	41,390,000	51,055,880	50,472,025	52,502,529*
Intramural Laboratory and Clinical Research	19,819,000	22,347,928	25,754,186	29,316,494
Research Management and Program Services	13,018,000	15,371,480	18,041,216	20,331,353
General Research Support Grants	8,149,000	1,067,000	—	—
Total, NHLBI	$255,722,000	$327,269,847	$327,953,342	$368,648,094

*$3.5 million of Biomaterials activity was transferred from the Division of Blood Diseases and Resources to the Division of Heart and Vascular Diseases in Fiscal Year 1976.

Division of Heart and Vascular Diseases: Obligations by Budget Mechanism

Total Fiscal Year 1976 Obligations — $215,314,246


Manpower Programs 5.5%
Research and Development Contracts 30.1%
Research Project Grants 34.6%
Research Career Programs 1.0%
National Research and Demonstration Centers 1.5%
Specialized Centers of Research 8.9%
Program Project Grants 18.4%

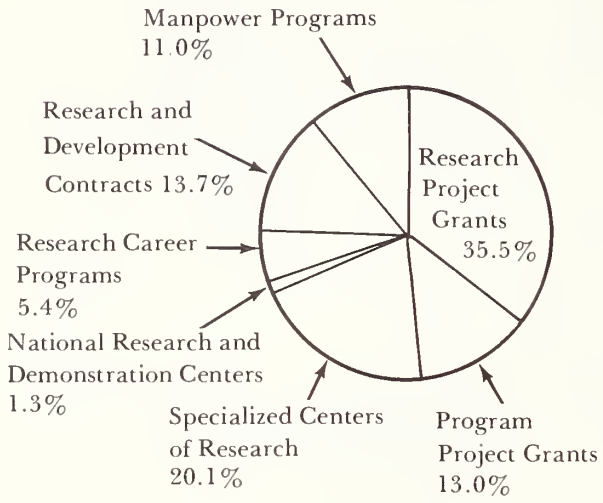

Research Management and Program Services 5.5%
Intramural Laboratory and Clinical Research 8.0%
Division of Blood Diseases and Resources 14.2%
Division of Heart and Vascular Diseases 58.4%
Division of Lung Diseases 13.9%

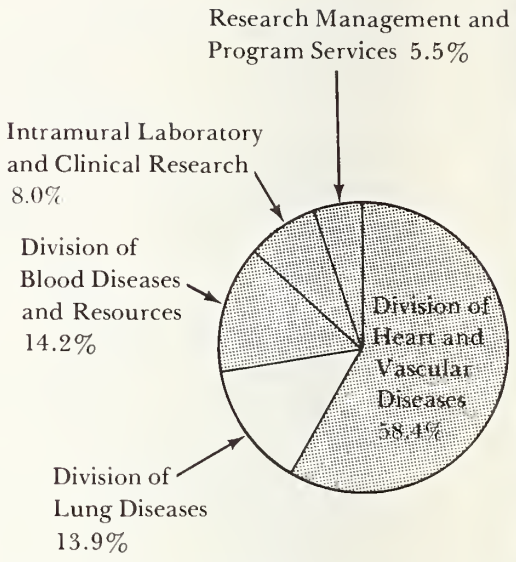
Note: Of total Extramural obligations, Division of Heart and Vascular Diseases is 67.4%, Division of Lung Diseases is 16.0%, and Division of Blood Diseases and Resources is 16.6%.

BUDGET MECHANISM	OBLIGATED DOLLARS
Research Project Grants	$ 74,544,790
Program Project Grants	39,667,260
Specialized Centers of Research (SCOR)	19,242,777
National Research and Demonstration Centers	3,251,356
Research Career Programs	2,037,084
Research and Development Contracts	64,788,994
Manpower Programs	11,781,985
Total, DHVD	$215,314,246

Division of Lung Diseases: Obligations by Budget Mechanism

Total Fiscal Year 1976 Obligations — $51,183,472



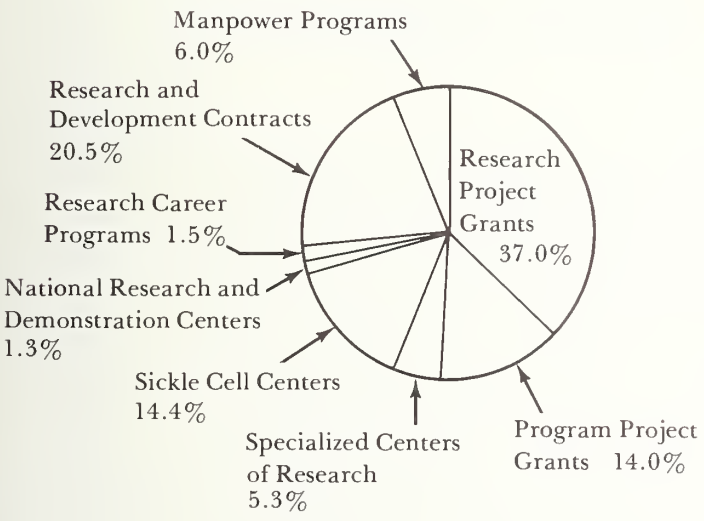


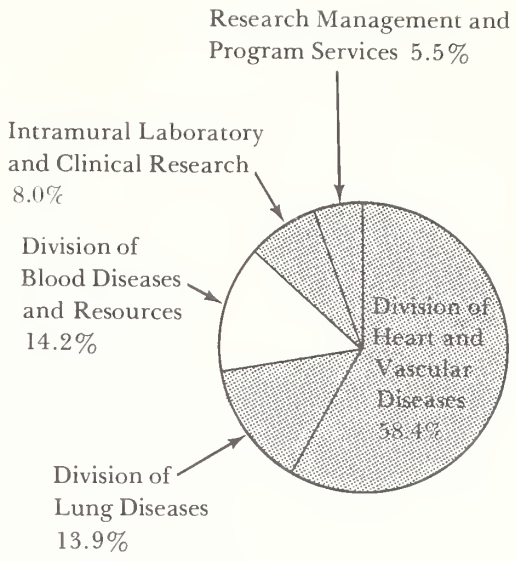
Note: Of total Extramural obligations, Division of Heart and Vascular Diseases is 67.4%, Division of Lung Diseases is 16.0%, and Division of Blood Diseases and Resources is 16.6%.

BUDGET MECHANISM	OBLIGATED DOLLARS
Research Project Grants	$18,191,053
Program Project Grants	6,653,482
Specialized Centers of Research	10,288,532
National Research and Demonstration Centers	674,523
Research Career Programs	2,737,247
Research and Development Contracts	7,006,067
Manpower Programs	5,632,568
Total, DLD	$51,183,472

Division of Blood Diseases and Resources: Obligations by Budget Mechanism

Total Fiscal Year 1976 Obligations — $52,502,529





Note: Of Extramural obligations, Division of Heart and Vascular Diseases is 67.4%, Division of Lung Diseases is 16.0%, and Division of Blood Diseases and Resources is 16.6%.

BUDGET MECHANISM	OBLIGATED DOLLARS
Research Project Grants	$19,442,752
Program Project Grants	7,333,533
Specialized Centers of Research	2,780,668
Sickle Cell Centers	7,557,792
National Research and Demonstration Centers	685,773
Research Career Programs	759,500
Research and Development Contracts	10,797,943
Manpower Programs	3,144,568
Total, DBDR	$52,502,529

9. Research Grants

NHLBI Research Grants by Activity 56
Research Project Grants, Program Project Grants, and Center Grants 57
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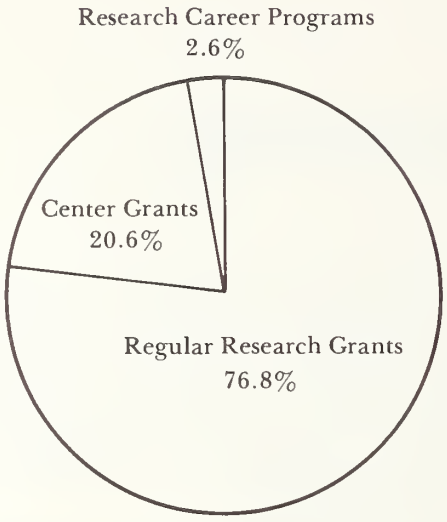
Comprehensive Sickle Cell Centers 67

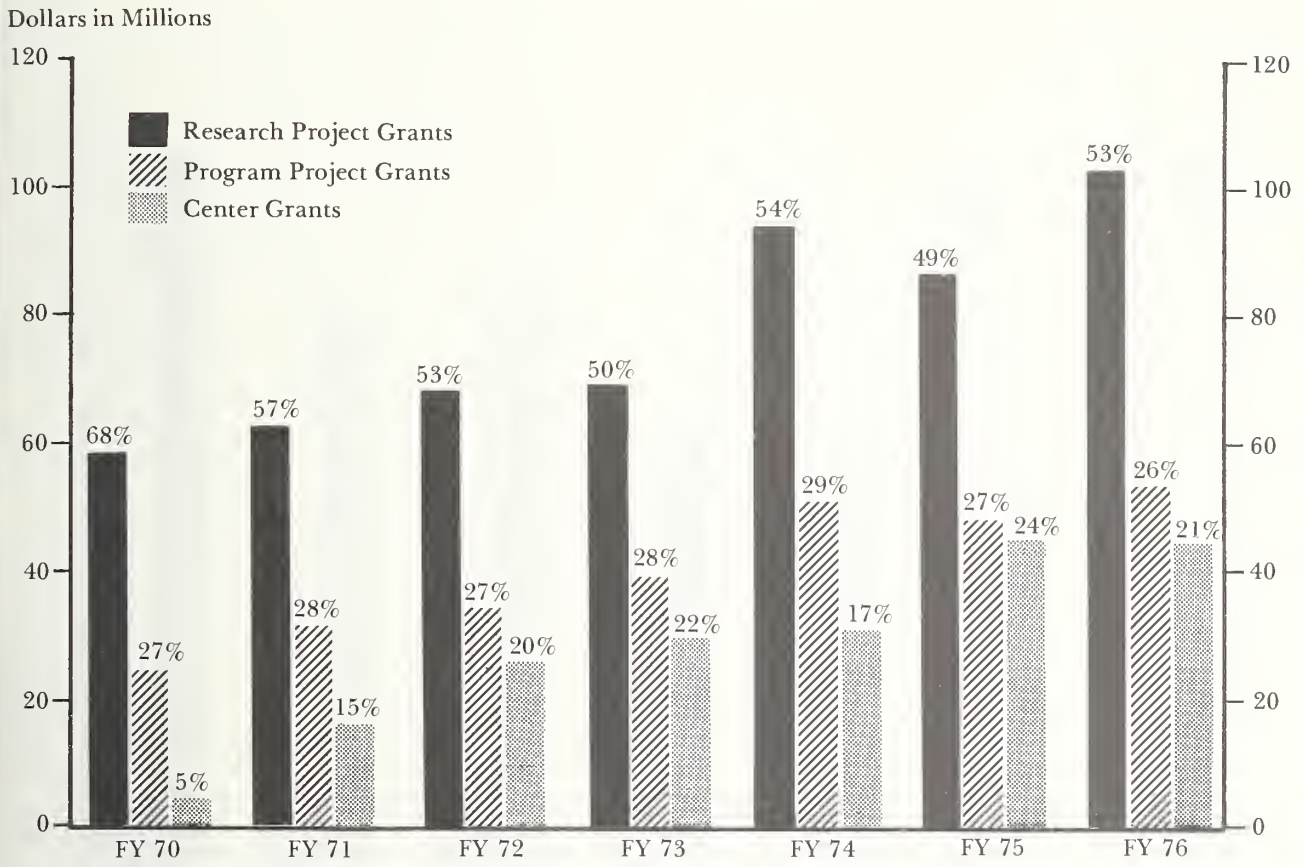
NHLBI Research Grants by Activity: Fiscal Year 1976

Total Obligations — $215,848,122



	Number of Grants Obligated	Direct Cost	Indirect Cost	Total Cost	Percent of Total NHLBI Research Grant Dollars
Research Project Grants (R01, R09, R13)	1,674	80,475,802	$29,219,128	$109,694,930	50.8
Program Project Grants (P01, P09)	93	40,147,178	13,507,097	53,654,275	24.9
Pulmonary Young Investigator Awards (R23)	44	1,269,534	474,829	1,744,363	0.8
Hypertension Education Grants (R25)	5	491,872	247,430	739,302	0.3
Subtotal, Regular Research Grants	1,816	$122,384,386	$43,448,484	$165,832,870	76.8
Specialized Centers of Research (P50)	32	21,975,627	10,336,350	32,311,977	15.0
Sickle Cell Centers (P60)	15	5,847,091	1,710,701	7,557,792	3.5
National Research and Development Centers (P60)	3	3,521,359	1,090,293	4,611,652	2.1
Subtotal, Center Grants	50	$ 31,344,077	$13,137,344	$ 44,481,421	20.6
Research Career Development Awards (K03, K04)	133	3,184,469	6,787	3,191,256	1.5
Research Career Awards (K06)	21	609,738	48,778	658,516	0.3
Pulmonary Academic Awards (K07)	34	1,284,856	271,592	1,556,448	0.7
Pulmonary Faculty Development Awards (K08)	5	127,611	0	127,611	0.1
Subtotal, Research Career Programs	193	$ 5,206,674	$ 327,157	$ 5,533,831	2.6
Total, NHLBI Research Grants	**2,059**	**$158,935,137**	**$56,912,985**	**$215,848,122**	**100.0**

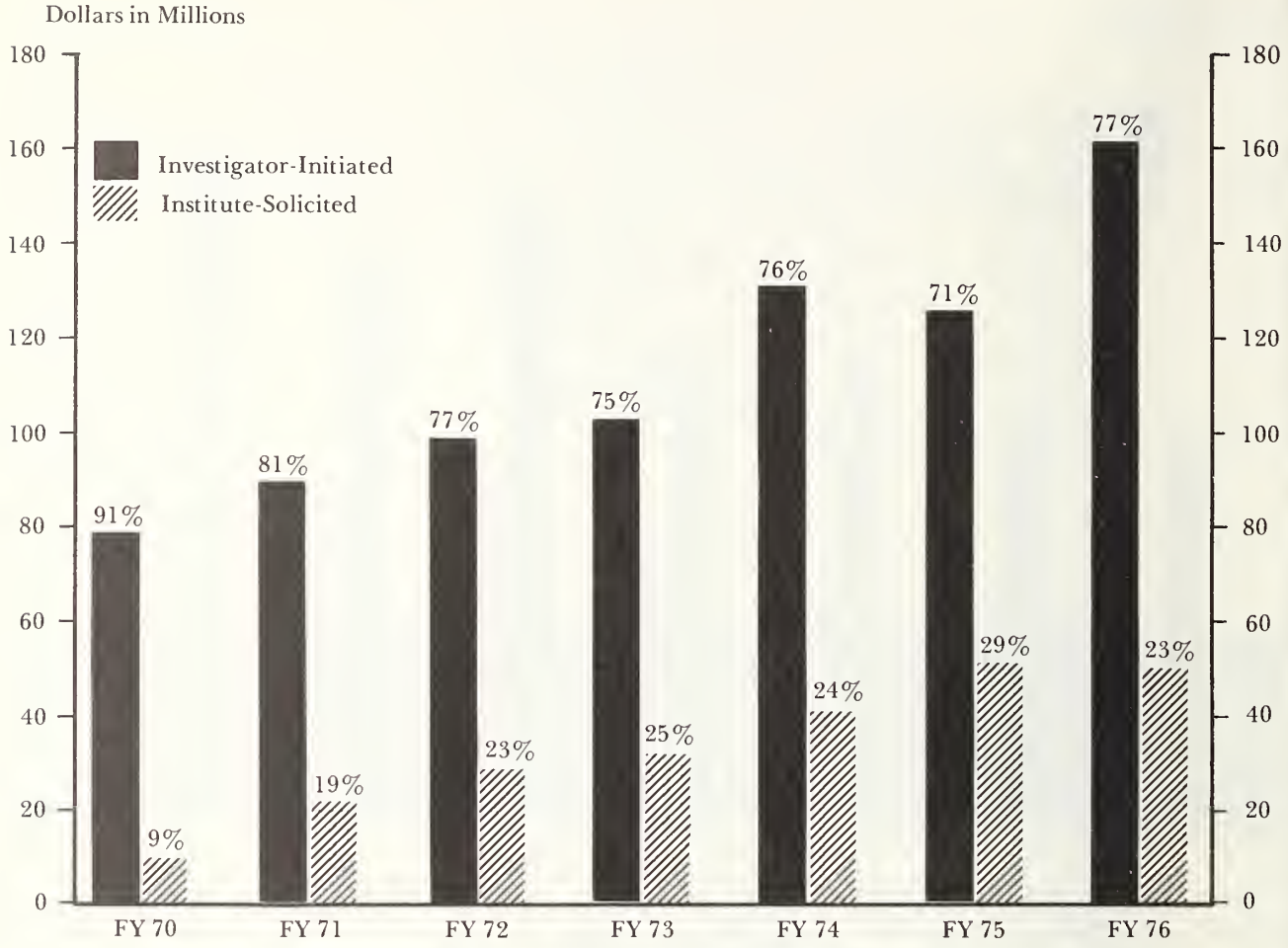
Research Project Grants, Program Project Grants, and Center Grants: Obligations for Fiscal Years 1970-1976



(Dollars in Thousands)

	FY 1970	FY 1971	FY 1972	FY 1973	FY 1974	FY 1975	FY 1976
Research Project Grants	$58,848	$ 61,787	$ 67,199	$ 69,089	$ 94,005	$ 86,521	$112,179
Program Project Grants	23,355	30,255	34,382	38,798	50,111	47,225	53,654
Center Grants	4,250	16,442	25,388	29,396	31,206	44,744	44,481
Total	$86,453	$108,484	$126,969	$137,283	$175,322	$178,490	$210,314

Investigator-Initiated vs. Institute-Solicited Research Grants*: Total Obligations for Fiscal Years 1970-1976

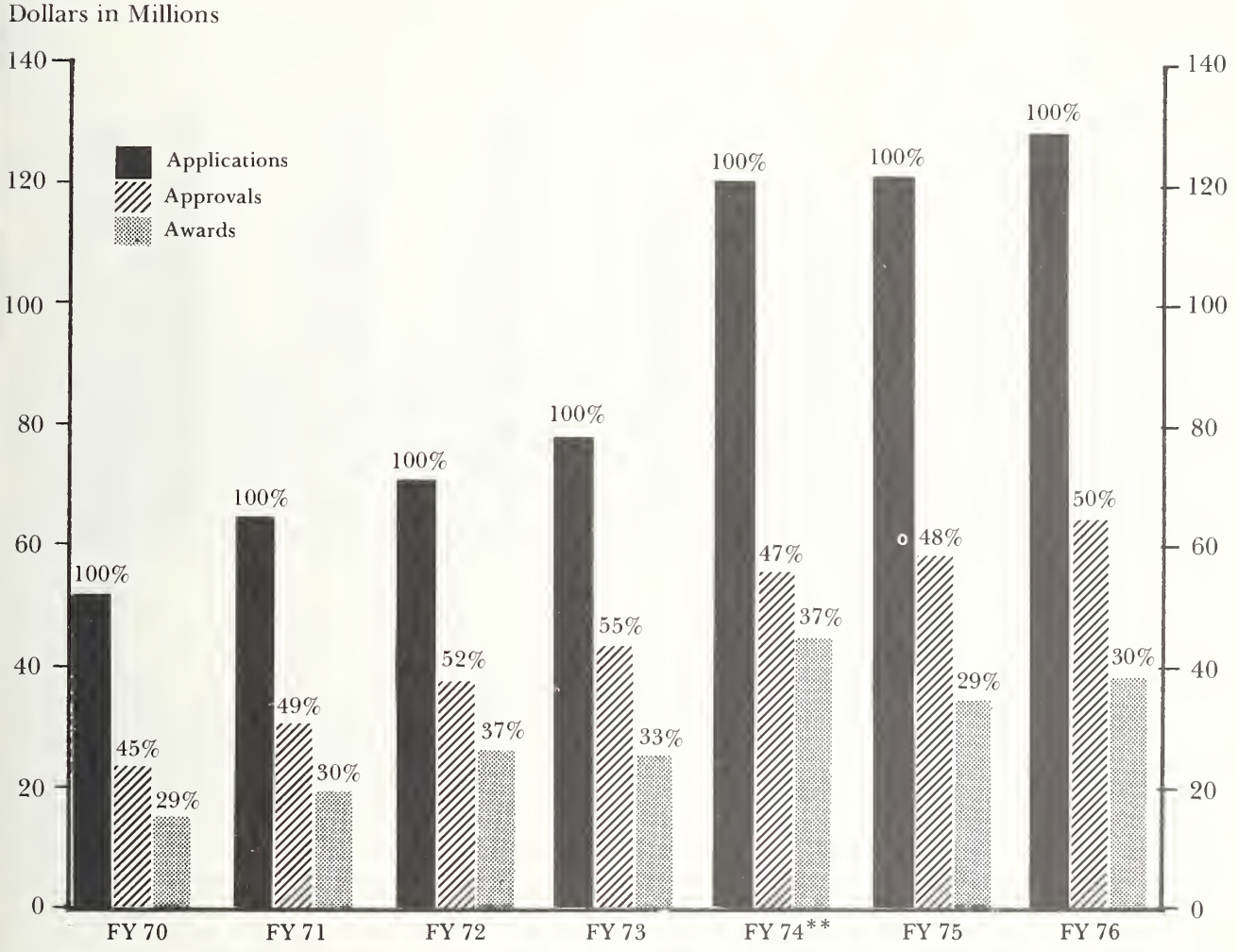


(Dollars in Thousands)

	FY 1970	FY 1971	FY 1972	FY 1973	FY 1974	FY 1975	FY 1976
Investigator-Initiated	$78,236	$ 87,463	$ 98,066	$103,392	$133,506	$126,070	$161,320
Institute-Solicited	8,217	21,021	28,903	33,891	41,816	52,420	48,994
Total	$86,453	$108,484	$126,969	$137,283	$175,322	$178,490	$210,314

*Includes Research Project Grants, Program Project Grants, and Center Grants.

Regular Research Grant* Applications, Approvals, and Awards: Direct Cost for Fiscal Years 1970-1976

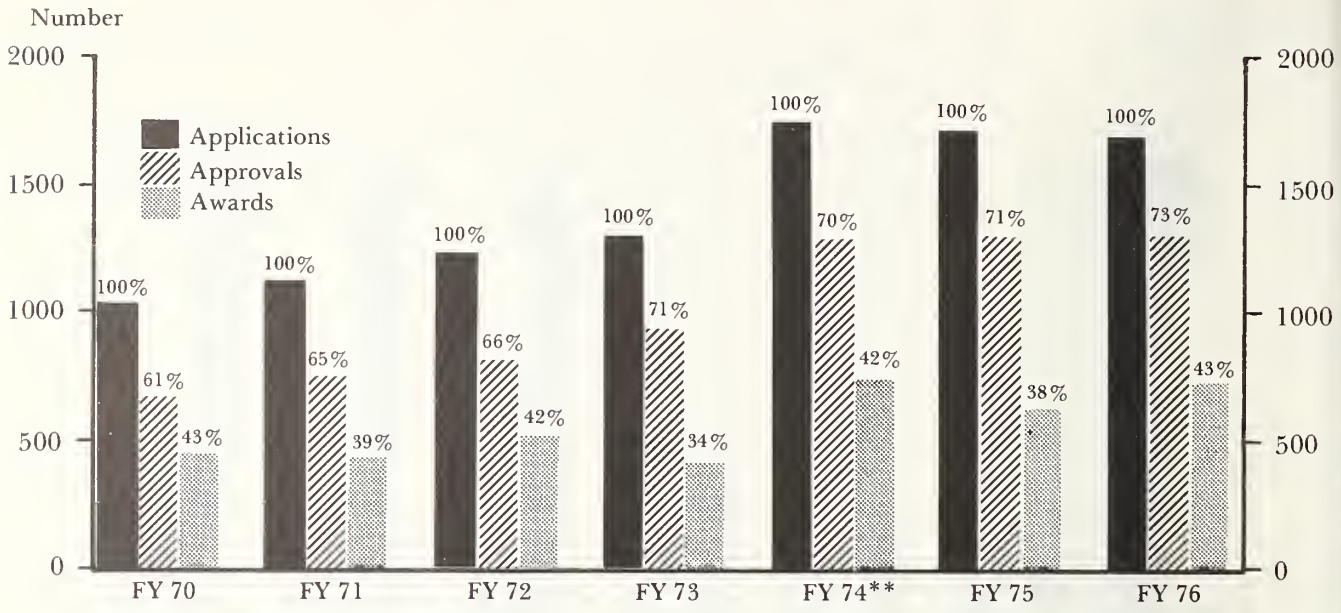


(Dollars in Thousands)

	FY 1970	FY 1971	FY 1972	FY 1973	FY 1974**	FY 1975	FY 1976
Applications	$52,434	$64,542	$71,545	$77,902	$120,281	$121,870	$128,701
Approvals	23,807	31,454	37,032	43,138	56,217	58,398	64,294
Awards	15,256	19,406	26,371	25,620	44,978	34,800	38,974

*Excludes Centers and Research Career Program.
**Reflects release of Fiscal Year 1973 impounded funds.

Number of Regular Research Grant* Applications, Approvals, and Awards: Fiscal Years 1970-1976

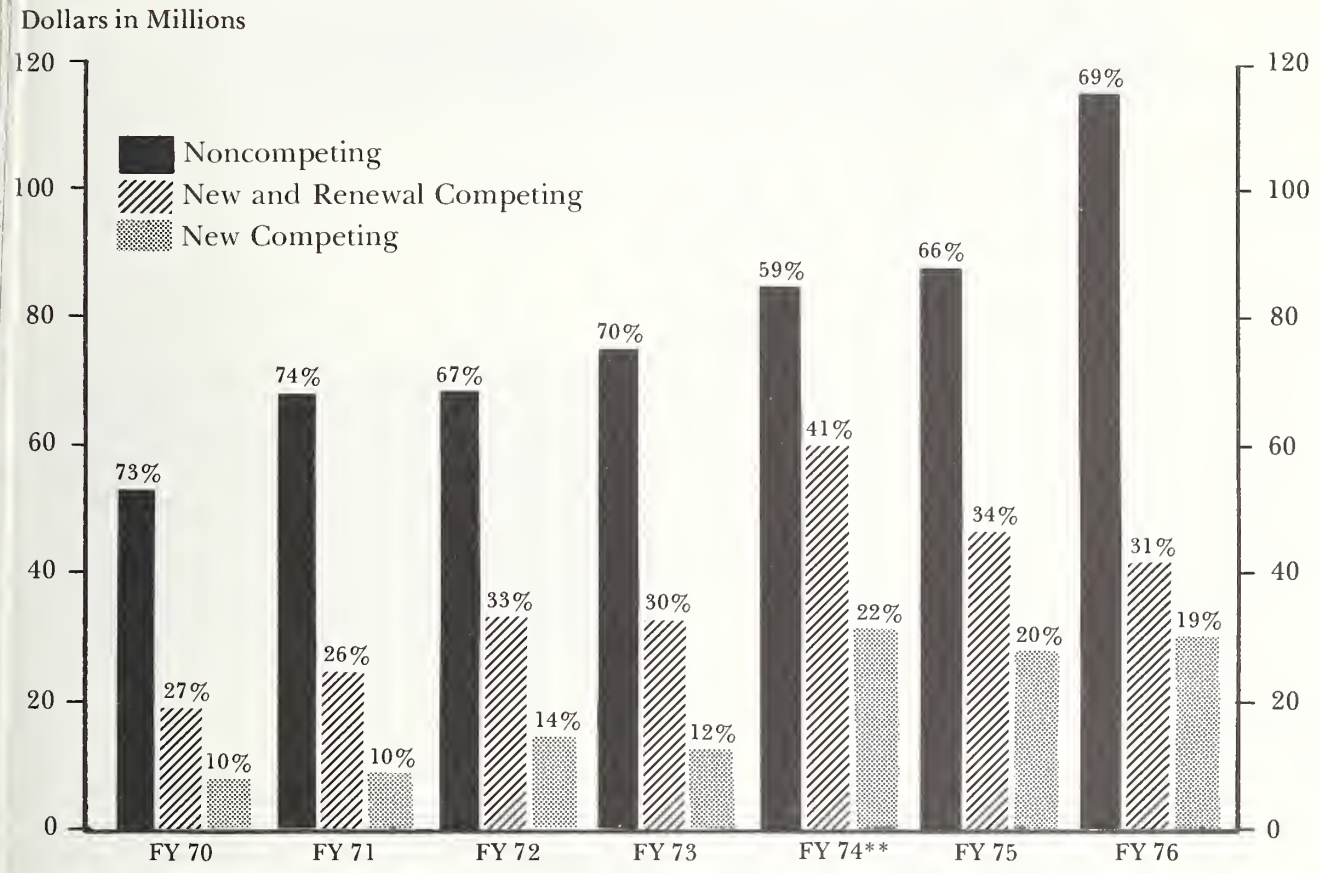


NUMBER OF GRANTS

	FY 1970	FY 1971	FY 1972	FY 1973	FY 1974**	FY 1975	FY 1976
Applications	1,051	1,149	1,206	1,299	1,713	1,691	1,670
Approvals	641	742	796	922	1,202	1,207	1,222
Awards	450	447	509	438	726	648	714

*Excludes Centers and Research Career Program.
**Reflects release of Fiscal Year 1973 impounded funds.

Competing vs. Noncompeting Research Grants*: Fiscal Years 1970-1976



(Dollars in Thousands)

	FY 1970	FY 1971	FY 1972	FY 1973	FY 1974**	FY 1975	FY 1976
Noncompeting	$52,968	$67,600	$ 68,045	$ 75,196	$ 85,050	$ 87,874	$115,273
New and Renewal Competing	19,235	24,243	33,537	32,683	59,066	45,874	51,560
New Competing	(7,069)	(9,482)	(14,642)	(12,856)	(32,029)	(27,134)	(30,972)
Total	$72,203	$91,843	$101,582	$107,879	$144,116	$133,748	$166,833

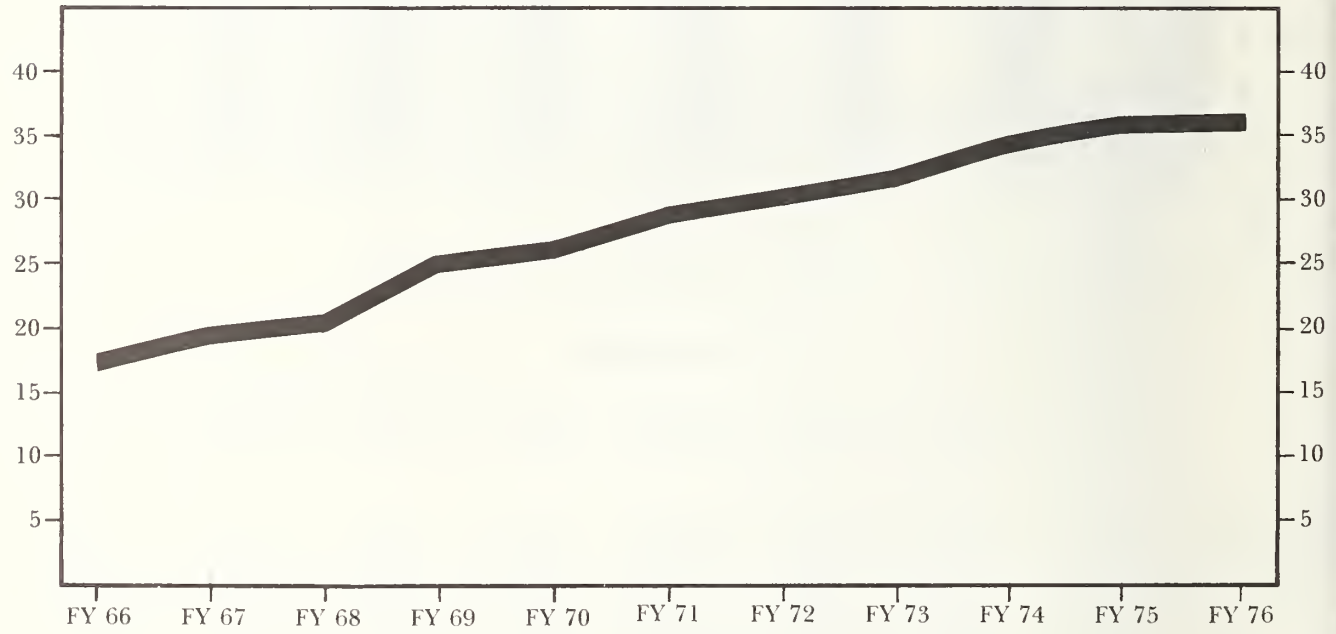
*Excludes Centers and Research Career Program.
**Reflects release of Fiscal Year 1973 impounded funds.

Growth of Indirect Cost Rates of Research Grants*: Fiscal Years 1966-1976

FISCAL YEAR	DIRECT COST	INDIRECT COST	INDIRECT COST AS A PERCENT OF DIRECT COST	TOTAL COST
1966	$ 74,928,433	$13,051,466	17.4	$ 87,979,899
1967	81,388,707	15,673,293	19.3	97,062,000
1968	77,891,819	17,019,229	21.8	94,911,048
1969	72,128,206	18,007,316	25.0	90,135,522
1970	68,466,617	17,986,387	26.3	86,453,004
1971	72,020,575	20,021,425	27.8	92,042,000
1972	81,350,199	25,035,497	30.8	106,385,696
1973	86,539,991	27,674,325	32.0	114,214,316
1974	109,691,890	37,797,863	34.5	147,489,753
1975	101,970,760	36,288,184	35.6	138,258,944
1976	124,915,900	44,436,926	35.6	169,352,826

*Includes Research Project Grants, Program Project Grants, Drug Study Grants, Sickle Cell Grants, and Sickle Cell Centers. Excludes Scientific Evaluation Grants and Conference Grants.

Percent Indirect Cost



Specialized Centers of Research (SCOR) Program Initiated in Fiscal Year 1971

The Specialized Centers of Research (SCOR) were instituted to advance basic knowledge and to generate the most effective techniques and methods of clinical management and prevention in the areas of Arteriosclerosis, Hypertension, Ischemic Heart Disease, Pulmonary Diseases, and Thrombosis.

ARTERIOSCLEROSIS

OBLIGATIONS

Funding History:

Fiscal Year 1976	$ 5,925,305
Fiscal Years 1971-1975	$47,788,577
Total Funding to Date	$53,713,882

CURRENT ACTIVE ORGANIZATIONS — GRANT NUMBERS

Program Inaugurated in 1971

1. Albany Medical College, Albany, New York . . . . . HL 14177
2. Bowman Gray School of Medicine, Wake Forest University, Winston-Salem, North Carolina . . . . . HL 14164
3. Massachusetts Institute of Technology, Cambridge, Massachusetts . . . . . HL 14209
4. Mayo Foundation, Rochester, Minnesota . . . . . HL 14196
5. Rockefeller University, New York, New York . . . . . HL 14236
6. Stanford University, Stanford, California . . . . . HL 14174
7. University of California, La Jolla, California . . . . . HL 14197
8. University of California, San Francisco, California . . . . . HL 14237
9. University of Miami, Coral Gables, Florida . . . . . HL 14141
10. University of Iowa, Iowa City, Iowa . . . . . HL 14230
11. University of Southern California, Los Angeles, California . . . . . HL 14138

Program Expanded in 1972

12. Louisiana State University, Baton Rouge, Louisiana . . . . . HL 15103
13. University of Chicago, Chicago, Illinois . . . . . HL 15062

HYPERTENSION

OBLIGATIONS	
Funding History:	
Fiscal Year 1976	$3,580,919
Fiscal Years 1971-1975	$14,244,139
Total Funding to Date	$17,825,058

CURRENT ACTIVE ORGANIZATIONS — GRANT NUMBERS

Phase One Inaugurated in 1971
Phase Two Awarded in 1976

1. Boston University, Boston, Massachusetts . . . . . HL 18318
2. Cornell Medical School, New York, New York . . . . . HL 18323
3. Indiana University Foundation, Bloomington, Indiana . . . . . HL 14159
4. Vanderbilt University School of Medicine, Nashville, Tennessee . . . . . HL 14192

ISCHEMIC HEART DISEASE

OBLIGATIONS	
Funding History:	
Fiscal Year 1976	$9,736,553
Fiscal Year 1975	$7,814,421
Total Funding to Date	$17,550,974

CURRENT ACTIVE ORGANIZATIONS — GRANT NUMBERS

Program Inaugurated in 1975

1. Cedars-Sinai Medical Center, Los Angeles, California . . . . . HL 17651
2. Duke University, Durham, North Carolina . . . . . HL 17670
3. Johns Hopkins University, Baltimore, Maryland . . . . . HL 17655
4. Massachusetts General Hospital, Boston, Massachusetts . . . . . HL 17665
5. University of Alabama, Birmingham, Alabama . . . . . HL 17667
6. University of California, San Diego, California . . . . . HL 17682
7. University of Chicago, Chicago, Illinois . . . . . HL 17648
8. University of Texas Southwestern Medical School, Dallas, Texas . . . . . HL 17669
9. Washington University, St. Louis, Missouri . . . . . HL 17646

PULMONARY DISEASES

OBLIGATIONS

Funding History:	
Fiscal Year 1976	$10,288,532
Fiscal Years 1971-1975	$34,706,824
Total Funding to Date	$44,995,356

CURRENT ACTIVE ORGANIZATIONS — GRANT NUMBERS

Phase One Inaugurated in 1971

1. Columbia University College of Physicians and Surgeons, New York, New York ..... HL 14218
2. Johns Hopkins University, Baltimore, Maryland ..... HL 14153
3. Medical College of Virginia, Richmond, Virginia ..... HL 14251
4. University of Arizona, Tucson, Arizona ..... HL 14136
5. University of California, La Jolla, California ..... HL 14169
6. University of California, San Francisco, California ..... HL 14201
7. University of Texas Southwestern Medical School, Dallas, Texas ..... HL 14187
8. University of Vermont, Burlington, Vermont ..... HL 14212
9. University of Washington, Seattle, Washington ..... HL 14152
10. Vanderbilt University School of Medicine, Nashville, Tennessee ..... HL 14214
11. Yale University, New Haven, Connecticut ..... HL 14179

Program Expanded in 1972

12. Boston University, Boston, Massachusetts ..... HL 15063
13. Medical College of Wisconsin, Milwaukee, Wisconsin ..... HL 15389
14. Rancho Los Amigos Hospital, Downey, California ..... HL 15098
15. Tulane University, New Orleans, Louisiana ..... HL 15092
16. University of Pennsylvania, Philadelphia, Pennsylvania ..... HL 15061

Phase Two Awarded in 1976

17. Harvard University, Boston, Massachusetts ..... HL 19170
18. Johns Hopkins University, Baltimore, Maryland ..... HL 19157
19. University of California, San Francisco, California ..... HL 19155
20. University of California, San Francisco, California ..... HL 19156
21. University of California, San Francisco, California ..... HL 19185
22. University of Missouri, Columbia, Missouri ..... HL 19160
23. University of North Carolina, Chapel Hill, North Carolina ..... HL 19171
24. University of Washington, Seattle, Washington ..... HL 19187

OBLIGATIONS

Funding History:	
Fiscal Year 1976	$2,780,668
Fiscal Years 1971-1975	$12,046,667
Total Funding to Date	$14,827,335

CURRENT ACTIVE ORGANIZATIONS — GRANT NUMBERS

Phase One Inaugurated in 1971
Phase Two Awarded in 1976

1. Cornell University Medical College, New York, New York ..... HL 18828
2. Temple University School of Medicine, Philadelphia, Pennsylvania ..... HL 14217
3. Washington University, St. Louis, Missouri ..... HL 14147

National Research and Demonstration Centers Program Initiated in Fiscal Year 1975

These centers will facilitate and expedite the translation of basic research findings to practical patient care in local communities across the nation.

OBLIGATIONS

Funding History:	
Fiscal Year 1976	$4,611,562
Fiscal Year 1975	$5,030,694
Total Funding to Date	$9,642,346

CURRENT ACTIVE ORGANIZATIONS — GRANT NUMBERS

1. Baylor College of Medicine, Houston, Texas ..... HL 17269
   (Heart and Vascular Diseases)
2. Puget Sound Blood Center, Seattle, Washington ..... HL 17265
   (Blood Diseases)
3. University of Vermont, Burlington, Vermont ..... HL 17292
   (Lung Diseases)

Comprehensive Sickle Cell Centers Program Initiated in Fiscal Year 1972

To bridge the gap between research and service, Comprehensive Sickle Cell Centers combine basic and clinical research, clinical trials and application, training, and community service projects.

OBLIGATIONS

Funding History:	
Fiscal Year 1976	$7,557,792
Fiscal Years 1972-1975	$25,558,957
Total Funding to Date	$33,116,749

CURRENT ACTIVE ORGANIZATIONS — GRANT NUMBERS

1. Boston University Hospital, Boston, Massachusetts . . . . . HL 15157
2. Children's Hospital, Cincinnati, Ohio . . . . . HL 15996
3. Columbia University, New York, New York . . . . . HL 15161
4. Howard University College of Medicine, Washington, D.C. . . . . HL 15160
5. Indiana University, Indianapolis, Indiana . . . . . HL 15166
6. Martin Luther King, Jr., General Hospital, Los Angeles, California . . . . . HL 15997
7. Medical College of Georgia, Augusta, Georgia . . . . . HL 15158
8. State University of New York, Brooklyn, New York . . . . . HL 15170
9. University of Chicago, Chicago, Illinois . . . . . HL 16005
10. University of Illinois, Chicago, Illinois . . . . . HL 15168
11. University of Miami School of Medicine, Miami, Florida . . . . . HL 15999
12. University of Pittsburgh School of Medicine, Pittsburgh, Pennsylvania . . . . . HL 15165
13. University of Southern California School of Medicine, Los Angeles, California . . . . . HL 15162
14. University of Tennessee, Memphis, Tennessee . . . . . HL 15169
15. Wayne State University, Detroit, Michigan . . . . . HL 16008

10. Research and Development Contracts

NHLBI Research and Development Contracts and Reimbursable Agreements with Other Federal Agencies 70

Major NHLBI Clinical Trials: Summary by Division 71

- Aspirin Myocardial Infarction Study (AMIS) 72
- Coronary Artery Surgery Trial (CAST) 73
- Hypertension Detection and Follow-up Program (HDFP) 74
- Lipid Research Clinics (LRC) 75
- Multiple Risk Factor Intervention Trial (MRFIT) 76
- Prevention of Neonatal Respiratory Distress Syndrome with Antenatal Steroid Administration 77
- Cooperative Study of Spontaneously Occurring Factor VIII Inhibitors in Patients with Hemophilia 78
- Sickle Cell Screening and Education Clinics 79

NHLBI Research and Development Contracts and Reimbursable Agreements with Other Federal Agencies:
Fiscal Year 1976 Obligations

	REIMBURSABLE AGREEMENTS WITH OTHER FEDERAL AGENCIES		RESEARCH AND DEVELOPMENT CONTRACTS		TOTAL	
	Number	Amount	Number	Amount	Number	Amount
Division of Heart and Vascular Diseases						
Multiple risk factor intervention	1	$ 99,445	16	$14,397,475	17	$14,496,920
Lipid metabolism	3	606,000	9	15,479,680	12	16,085,680
Hypertension detection and follow-up	3	429,791	15	11,996,237	18	12,426,028
Hypertension education	—	— —	1	1,408,631	1	1,408,631
Clinical cardiac diseases	—	— —	20	2,241,124	20	2,241,124
Devices and technology	4	265,059	58	10,270,642	62	10,535,701
Other clinical applications	2	75,344	1	80,408	3	155,752
Aspirin myocardial infarction study	2	360,622	24	2,659,504	26	3,020,126
Atherogenesis	—	— —	5	2,723,753	5	2,723,753
Epidemiology	1	20,000	7	851,402	8	871,402
Other heart and vascular	4	307,843	3	516,031	7	823,874
Subtotal, DHVD	20	$2,164,104	159	$62,624,887	179	$64,788,991
Division of Lung Diseases						
Respiratory diseases	—	— —	72	6,911,150	72	6,911,150
Education, prevention, and control	1	94,917	—	— —	1	94,917
Subtotal, DLD	1	$ 94,917	72	$ 6,911,150	73	$ 7,006,067
Division of Blood Diseases and Resources						
Blood resources and transplantation	3	225,940	27	4,585,348	30	4,811,288
Thrombosis and hemorrhagic diseases	1	39,400	4	357,770	5	397,170
Sickle cell disease	2	3,879,000*	17	1,539,882	19	5,418,882
Minority biomedical support	1	170,603	—	— —	1	170,603
Subtotal, DBDR	7	$4,314,943	48	$ 6,483,000	55	$10,797,943
Division of Intramural Research						
Heart and vascular diseases	—	— —	4	474,114	4	474,114
Blood diseases and resources	—	— —	1	113,080	1	113,080
Multicategorical	4	82,500	3	198,751	7	281,251
Subtotal, DIR	4	$ 82,500	8	$ 785,945	12	$ 868,445
Research Management and Program Services						
Heart and vascular diseases	1	45,000	—	— —	1	45,000
Multicategorical	—	— —	2	215,100	2	215,100
Subtotal, RMPS	1	45,000	2	215,100	3	260,100
Total, NHLBI	33	$6,701,464	289	$77,020,082	322	$83,721,546

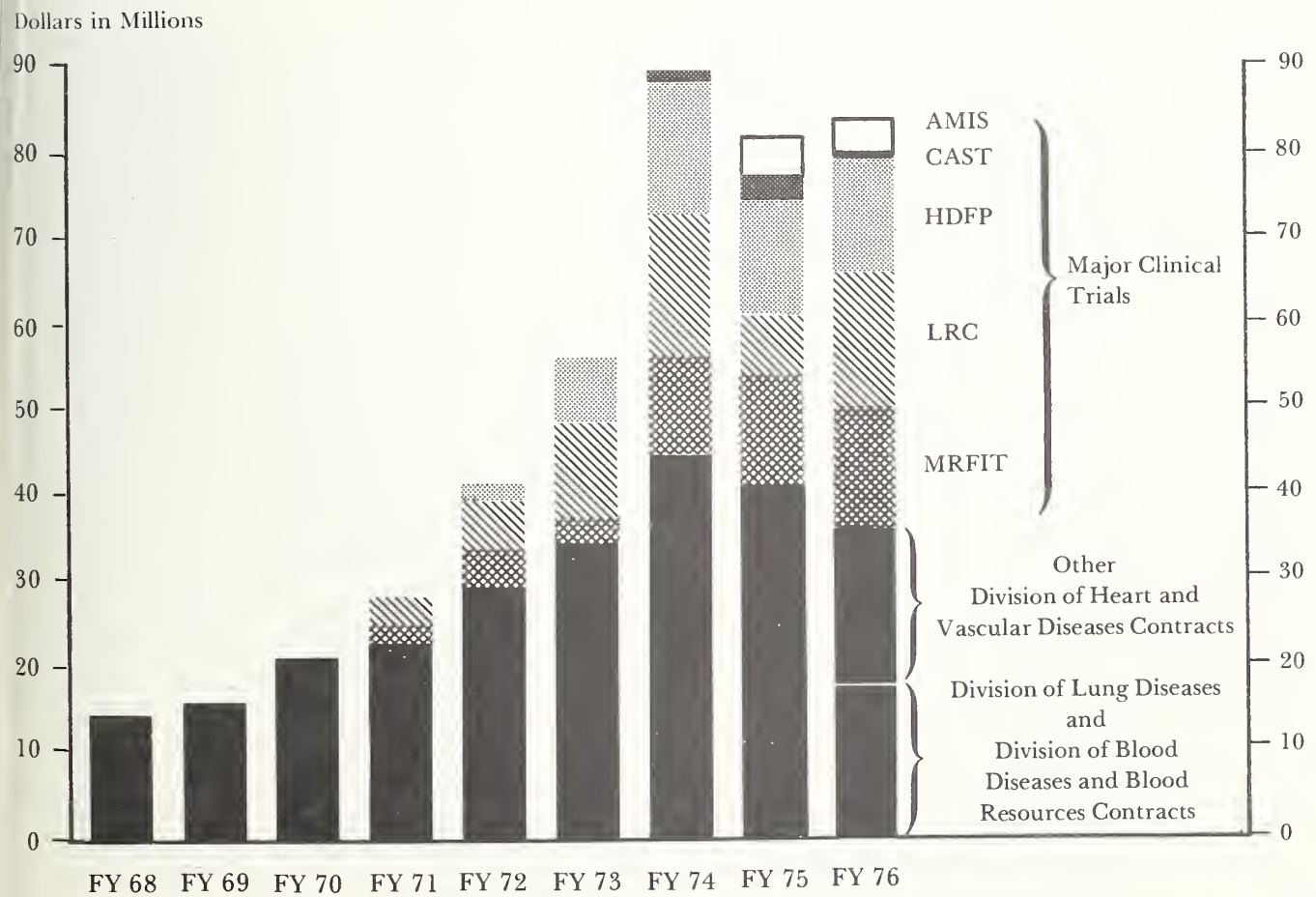
*Includes a $3,500,000 reimbursable agreement with the Health Services Administration for administering the sickle cell clinics program.

Major NHLBI Clinical Trials: Summary by Division

	TOTAL OBLIGATIONS PRIOR TO FY 1976	TOTAL FY 1976 OBLIGATIONS	TOTAL OBLIGATIONS TO DATE
Division of Heart and Vascular Diseases			
AMIS	$ 4,509,532	$ 3,020,126	$ 7,529,658
CAST	4,177,864	873,040	5,050,904
HDFP	28,583,990	12,021,237	40,605,227
LRC	47,469,873	16,085,680	63,555,553
MRFIT	38,253,934	14,496,920	52,750,854
Subtotal DHVD	$122,995,193	$46,497,003	$169,492,196
Division of Lung Diseases			
Neonatal RDS	—	134,355	134,355
Division of Blood Diseases and Resources			
Factor VIII	1,274,397	0*	1,274,397
Total, NHLBI	$124,269,590	$46,631,358	$170,900,948

*Funded in Fiscal Year 1976 from Fiscal Year 1975 funds.

Major NHLBI Clinical Trials: Obligations for Fiscal Years 1968-1976



Aspirin Myocardial Infarction Study (AMIS): Division of Heart and Vascular Diseases Program Initiated in Fiscal Year 1975

This study will determine whether administration of aspirin to persons who have had at least one documented heart attack will result in a significant reduction in cardiovascular morbidity and mortality.

OBLIGATIONS

Funding History:

Fiscal Year 1976	$3,020,126
Fiscal Year 1975	$4,509,532
Total Funding to Date	$7,529,658

CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
1. Boston City Hospital, Boston, Massachusetts	HV-5-2937
2. Cornell University, New York, New York	HV-5-2931
3. Emory University, Atlanta, Georgia	HV-5-2917
4. Evanston Hospital, Evanston, Illinois	HV-5-2935
5. Geisinger Medical Center, Danville, Pennsylvania	HV-5-2920
6. Greater Baltimore Medical Center, Baltimore, Maryland	HV-5-2932
7. Henry Ford Hospital, Detroit, Michigan	HV-5-2925
8. Lankenau Hospital, Philadelphia, Pennsylvania	HV-5-2938
9. Long Island Jewish-Hillside Hospital, New Hyde Park, New York	HV-5-2915
10. Medical College of Virginia, Richmond, Virginia	HV-5-2914
11. Mt. Sinai Hospital, Minneapolis, Minnesota	HV-5-2926
12. Mt. Sinai Medical Center, Miami Beach, Florida	HV-5-2933
13. Northwestern University, Chicago, Illinois	HV-5-2929
14. Ogden Research Foundation, Ogden, Utah	HV-5-2918
15. Pacific Health Research Foundation, Honolulu, Hawaii	HV-5-2936
16. Palo Alto Medical Research Foundation, Palo Alto, California	HV-5-2911
17. Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois	HV-5-2919
18. Rutgers Medical-CMDNJ, Piscataway, New Jersey	HV-5-2924
19. St. Joseph's Hospital, Chicago, Illinois	HV-5-2927
20. Salt Lake Clinic, Salt Lake City, Utah	HV-5-2923
21. Santa Rosa Medical Center, San Antonio, Texas	HV-5-2921
22. United States Public Health Service Hospital, San Francisco, California	HV-5-0029
23. University of California, Davis, California	HV-5-2916
24. University of Cincinnati, Cincinnati, Ohio	HV-5-2930
25. University of Miami, Miami, Florida	HV-5-2928
26. University of Michigan, Ann Arbor, Michigan	HV-5-2913
27. University of Mississippi, Jackson, Mississippi	HV-5-2912
28. University of Puerto Rico, San Juan, Puerto Rico	HV-5-2910
29. University of Southern California, Los Angeles, California	HV-5-2934

30. University of Washington, Seattle, Washington HV-5-2922
31. AMIS Coordinating Center, University of Maryland, Baltimore, Maryland. HV-5-2901
32. AMIS ECG Reading Center, George Washington University, Washington, D.C. HV-5-2941
33. Central Laboratory, Center for Disease Control, DHEW, Atlanta, Georgia HV-5-0010

Coronary Artery Surgery Trial (CAST): Division of Heart and Vascular Diseases Program Initiated in Fiscal Year 1973

The Coronary Artery Surgery Trial will evaluate the efficacy of coronary artery bypass surgery and its potential therapeutic effect in reducing morbidity and mortality in coronary artery disease.

OBLIGATIONS

Funding History:

Fiscal Year 1976	$ 873,040
Fiscal Years 1973-1975	$4,177,864
Total Funding to Date	$5,050,904

CURRENT ACTIVE ORGANIZATIONS — CONTRACT NUMBERS

1. Albany Medical College, Albany, New York HV-6-2921
2. Boston University Medical Center, Boston, Massachusetts HV-6-2923
3. Johns Hopkins University, Baltimore, Maryland. HV-6-2924
4. Loma Linda University, Loma Linda, California. HV-3-2975
5. Marshfield Clinic, Marshfield, Wisconsin HV-3-2981
6. Massachusetts General Hospital, Boston, Massachusetts HV-3-2985
7. Mayo Clinic, Rochester, Minnesota HV-3-2984
8. Medical College of Wisconsin, Milwaukee, Wisconsin HV-3-2982
9. Miami Heart Institute, Miami, Florida HV-3-2979
10. Montreal Heart Institute, Montreal, Quebec, Canada HV-3-2983
11. New York University, New York, New York HV-3-2976
12. St. Louis University, St. Louis, Missouri. HV-3-2980
13. St. Luke's Hospital Center, New York, New York. HV-3-2978
14. Stanford University, Stanford, California. HV-3-2974
15. University of Alabama, Birmingham, Alabama HV-6-2922
16. University of Oregon, Portland, Oregon HV-3-2977
17. University of Washington, Seattle, Washington HV-3-2973
18. Yale University, New Haven, Connecticut HV-6-2925

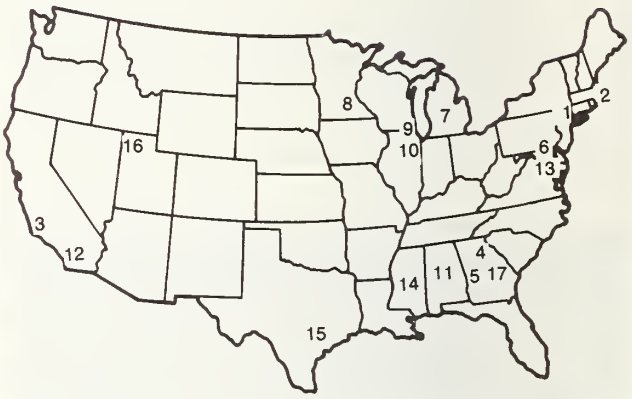
Hypertension Detection and Follow-up Program (HDFP): Division of Heart and Vascular Diseases Program Initiated in Fiscal Year 1971

This program will determine, in the general population, the extent to which mortality and morbidity associated with elevated blood pressure can be reduced by systematic anti-hypertensive drug management.

OBLIGATIONS

Funding History:

Fiscal Year 1976	$12,021,237
Fiscal Years 1971-1975	$28,583,990
Total Funding to Date	$40,605,227



CURRENT ACTIVE ORGANIZATIONS — CONTRACT NUMBERS

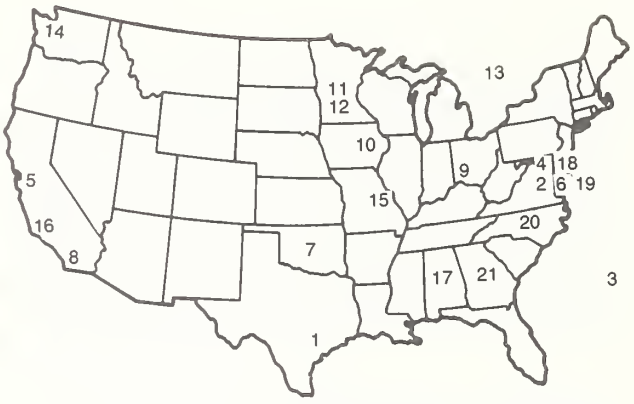
1. Albert Einstein College of Medicine, New York, New York HV-2-2931
2. Boston Hospital, Boston, Massachusetts HV-1-2433
3. Cedars-Sinai Medical Center, Los Angeles, California HV-1-2436
4. Emory University, Atlanta, Georgia HV-2-2938
5. Evans County Health Department, Claxton, Georgia HV-1-2434
6. Georgetown University Medical Center, Washington, D.C. HV-1-2438
7. Michigan State University, East Lansing, Michigan HV-2-2939
8. Mt. Sinai Hospital, Minneapolis, Minnesota HV-2-2937
9. Northwestern University, Evanston, Illinois HV-1-2441
10. Northwestern University Medical School, Evanston, Illinois HV-3-2933
11. University of Alabama Medical Center, Birmingham, Alabama HV-1-2440
12. University of California, La Jolla, California HV-2-2945
13. University of Maryland Medical School, Baltimore, Maryland HV-1-2439
14. University of Mississippi, Jackson, Mississippi HV-1-2437
15. University of Texas School of Public Health, Houston, Texas HV-1-2442
16. University of Utah, Salt Lake City, Utah HV-1-2435
17. Laboratory Monitoring, Center for Disease Control, DHEW, Atlanta, Georgia HV-4-0020

Lipid Research Clinics (LRC): Division of Heart and Vascular Diseases Program Initiated in Fiscal Year 1971

These clinics create a climate for better diagnosis, management, and further research studies in hyperlipoproteinemia. Studies include the prevalence of abnormalities, their causes and treatment, and the effect of this treatment on premature atherosclerosis.

OBLIGATIONS

Funding History:	
Fiscal Year 1976	$16,085,680
Fiscal Years 1971-1975	$47,469,873
Total Funding to Date	$63,555,553



CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
1. Baylor College of Medicine, Houston, Texas	HV-1-2156
2. George Washington University School of Medicine, Washington, D.C.	HV-3-2931
3. Hadassah Medical Organization, Jerusalem, Israel	HV-5-3015
4. Johns Hopkins University, Baltimore, Maryland	HV-1-2158
5. Leland Stanford, Jr., University, Stanford, California	HV-1-2161
6. Nutrient Composition Laboratories, USDA, Washington, D.C.	HV-6-0041
7. Oklahoma Medical Research Foundation, Oklahoma City, Oklahoma	HV-2-2932
8. University of California, La Jolla, California	HV-1-2160
9. University of Cincinnati, Cincinnati, Ohio	HV-2-2914
10. University of Iowa, Iowa City, Iowa	HV-2-2913
11. University of Minnesota, Minneapolis, Minnesota	HV-2-2915
12. University of Minnesota, Minneapolis, Minnesota	HV-6-2941
13. University of Toronto, Toronto, Ontario, Canada	HV-2-2917
14. University of Washington, Seattle, Washington	HV-1-2157
15. Washington University, St. Louis, Missouri	HV-2-2916
16. Central Clinical Laboratory, Bio-Science Laboratories, Van Nuys, California	HV-3-2961
17. Central Exercise Laboratory, University of Alabama, Birmingham, Alabama	HV-1-2159
18. Foodstuff Analysis, FDA, Rockville, Maryland	HV-5-0024
19. Food Composition Tables, USDA, Washington, D.C.	HV-4-0005
20. Registry and Coordinating Center, University of North Carolina, Chapel Hill, North Carolina	HV-1-2243
21. Standardization Laboratory, Center for Disease Control, DHEW, Atlanta, Georgia	HV-3-0010

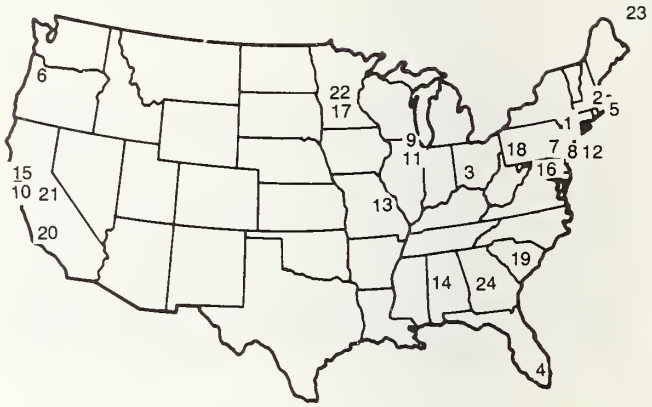
Multiple Risk Factor Intervention Trial (MRFIT): Division of Heart and Vascular Diseases Program Initiated in Fiscal Year 1972

This investigation will determine whether a preventive program directed at the reduction of serum cholesterol, reduction of blood pressure, and reduction or elimination of cigarette smoking among men (age group 35-57) will significantly reduce the incidence of myocardial infarction and death from coronary heart diseases.

OBLIGATIONS

Funding History:

Fiscal Year 1976	$14,496,920
Fiscal Years 1972-1975	$38,253,934
Total Funding to Date	$52,750,854



CURRENT ACTIVE ORGANIZATIONS — CONTRACT NUMBERS

1. American Health Foundation, New York, New York HV-2-2983
2. Boston University, Boston, Massachusetts HV-3-3106
3. Cox Heart Institute, Dayton, Ohio HV-3-3108
4. Dade County Department of Public Health, Miami, Florida HV-4-2933
5. Harvard University, Boston, Massachusetts HV-2-2979
6. Kaiser Research Foundation, Portland, Oregon HV-3-3105
7. Lankenau Hospital, Philadelphia, Pennsylvania HV-3-3110
8. New Jersey School of Medicine, Newark, New Jersey HV-3-3104
9. Northwestern University, Chicago, Illinois HV-2-2978
10. Pacific Medical Center, San Francisco, California HV-2-2981
11. Rush-Presbyterian-St. Luke's Medical Center, Chicago, Illinois HV-4-2930
12. Rutgers Medical School, Piscataway, New Jersey HV-4-2929
13. St. Louis Heart Association, St. Louis, Missouri HV-2-2982
14. University of Albama, Birmingham, Alabama HV-3-3107
15. University of California, Davis, California HV-2-2977
16. University of Maryland, Baltimore, Maryland HV-2-2980
17. University of Minnesota, Minneapolis, Minnesota HV-2-2976
18. University of Pittsburgh, Pittsburgh, Pennsylvania HV-3-3109
19. University of South Carolina, Columbia, South Carolina HV-4-2932
20. University of Southern California, Los Angeles, California HV-4-2931
21. Central Laboratory, Pacific Medical Center, San Francisco, California HV-3-3101
22. Coordinating Center, University of Minnesota, Minneapolis, Minnesota HV-2-2971
23. ECG Laboratory, Dalhousie University, Halifax, Nova Scotia, Canada HV-4-2911
24. Standardization Laboratory, Center for Disease Control, DHEW, Atlanta, Georgia HV-4-0016

Prevention of Neonatal Respiratory Distress Syndrome with Antenatal Steroid Administration:

Division of Lung Diseases

Program Initiated in Fiscal Year 1976

This is a clinical trial to determine if the incidence, morbidity, and mortality from neonatal respiratory distress syndrome can be reduced in infants at risk by antenantal administration of steroids and whether any sequelae in survivors can be attributed to steroid therapy.

OBLIGATIONS

Funding History:	
Fiscal Year 1976	$134,355*
Total Funding to Date	$134,355

*Trial Development Phase

CURRENT ACTIVE ORGANIZATIONS — CONTRACT NUMBERS

1. Emory University, Atlanta, Georgia HR-6-2954
2. Northwestern University, Evanston, Illinois HR-6-2950
3. University of Miami, Miami, Florida HR-6-2951
4. University of Tennessee, Knoxville, Tennessee HR-6-2953
5. University of Wisconsin, Madison, Wisconsin HR-6-2952
6. Coordinating Center, Research Triangle Institute, Research Triangle Park, North Carolina HR-6-2948

Cooperative Study of Spontaneously Occurring Factor VIII Inhibitors in Patients with Hemophilia: Division of Blood Diseases and Resources Program Initiated in Fiscal Year 1975

The purpose of this study is to obtain data on the occurrence and natural course of the inhibitor, correlate inhibitor behavior with the clinical course, and study complex inhibitors with the cooperation of a reference laboratory.

OBLIGATIONS

Funding History:

Fiscal Year 1976	$0*
Fiscal Year 1975	$1,274,397
Total Funding to Date	$1,274,397

*Funded in Fiscal Year 1976 from Fiscal Year 1975 funds

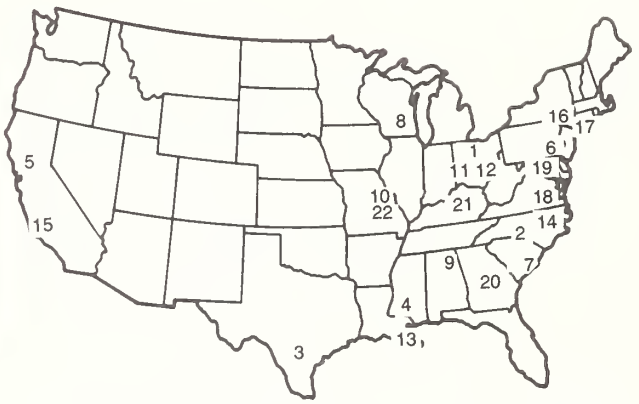
CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
1. Jefferson Medical College, Philadelphia, Pennsylvania	HB-5-3018
2. Memorial Hospital, Worcester, Massachusetts	HB-5-3019
3. Milton Hershey Medical School, Pennsylvania State University, Hershey, Pennsylvania	HB-5-3021
4. Mt. Sinai School of Medicine, New York, New York	HB-5-3020
5. University of Colorado Medical Center, Denver, Colorado	HB-5-3023
6. University of Minnesota, St. Paul, Minnesota	HB-5-3022
7. University of North Carolina, Chapel Hill, North Carolina	HB-5-3016
8. University of Oregon, Portland, Oregon	HB-5-3024
9. University of Southern California, Los Angeles, California	HB-5-3017
10. Wayne State University, Detroit, Michigan	HB-5-3025
11. Coordinating Center, Cardeza Foundation, Jefferson Medical College Philadelphia, Pennsylvania	HB-5-3035

Sickle Cell Screening and Education Clinics*: Division of Blood Diseases and Resources Program Initiated in Fiscal Year 1972

These clinics serve as models for testing service activity methods in a variety of environments. Such activities include Education, Screening, Counseling, and Patient Referral.

*Funding by the NHLBI and administered by Health Services Administration, DHEW.

OBLIGATIONS	
Funding History:	
Fiscal Year 1976	$ 3,292,928
Fiscal Years 1972-1975	$10,674,765
Total Funding to Date	$13,967,693



CURRENT ACTIVE ORGANIZATIONS	CONTRACT NUMBERS
1. American Sickle Cell Anemia Association, Cleveland, Ohio	240-76-0041
2. Associate for Sickle Cell Disease for Charlotte-Mechlenburg, Inc., Charlotte, North Carolina	240-76-0040
3. Bexar County Anemia Association, San Antonio, Texas	240-76-0035
4. Central Mississippi Civic Improvement Association, Inc., Jackson, Mississippi	240-76-0029
5. Children's Hospital Medical Center of Northern California, Oakland, California	240-76-0033
6. Citizens of Tioga-Nicetown, Inc., Philadelphia, Pennsylvania	240-76-0092
7. Committee on Better Racial Assurance, Charleston, South Carolina	240-76-0024
8. Deaconess Hospital, Milwaukee, Wisconsin	240-76-0028
9. Delta Sigma Theta, Inc., Huntsville, Alabama	240-76-0039
10. De Paul Community Health Center, St. Louis, Missouri	240-76-0027
11. Drew Health Center, Dayton, Ohio	240-76-0026
12. ECCO Family Health Center, Columbus, Ohio	240-76-0038
13. Flint-Goodridge Hospital, New Orleans, Louisiana	240-76-0023
14. Forsyth County Health Department, Winston-Salem, North Carolina	240-76-0030
15. Hemoglobinopathy Center of Los Angeles, Los Angeles, California	240-76-0036
16. Long Island Jewish Hillside Medical Center, Jamaica, New York	240-76-0032
17. Meadowbrook Medical Education and Research Foundation, Inc., East Meadow, New York	240-76-0022
18. Medical College of Virginia, Richmond, Virginia	240-76-0034
19. Provident Hospital, Baltimore, Maryland	240-76-0093
20. Sickle Cell Foundation of Georgia, Inc., Atlanta, Georgia	240-76-0031
21. Thomas Hunt Morgan Institute of Genetics, Inc., Lexington, Kentucky	240-76-0037
22. Yeatman District Community Corporation, St. Louis, Missouri	240-76-0025

11. Manpower Programs

Fiscal Year 1976 Obligations by Activity 82
History of Obligations by Activity: Fiscal Years 1970-1976 82
Number of Trainees by Activity (Full-Time Equivalents): Fiscal Years 1970-1976 83

NHLBI Manpower Programs: Fiscal Year 1976 Obligations by Activity

	NUMBER OF AWARDS OBLIGATED	NUMBER OF TRAINEES (FULL-TIME EQUIVALENTS)	DIRECT COST	INDIRECT COST	TOTAL COST	PERCENT OF TOTAL NHLBI MANPOWER PROGRAM DOLLARS
Postdoctoral & Special Fellowships (F02, F03)	1	1	$ 19,784	$ —	$ 19,784	0.1
Individual Research Fellowships (F22)	43	43	676,621	—	676,621	3.3
Individual National Research Service Awards (F32)	193	193	2,573,889	—	2,573,889	12.5
Subtotal, Fellowships	237	237	$ 3,270,294	—	$ 3,270,294	15.9
Graduate Training Grants (T01)	85	340	7,476,034	622,097	8,098,131	39.4
Pulmonary Faculty Training Centers (T17)	6	24	368,790	29,183	397,973	1.9
Institutional National Research Service Awards (T32)	106	491	8,187,923	604,800	8,792,723	42.8
Subtotal, Training Grants	197	855	$16,032,747	$1,256,080	$17,288,827	84.1
Total, NHLBI Manpower Programs	434	1,092	$19,303,041	$1,256,080	$20,559,121	100.0

NHLBI Manpower Programs: History of Obligations by Activity for Fiscal Years 1970-1976

(Dollars in Thousands)

	FY 1970	FY 1971	FY 1972	FY 1973	FY 1974	FY 1975	FY 1976
Postdoctoral and Special Fellowships (F02, F03)	$ 1,943	$ 2,052	$ 1,310	$ 802	$ 393	$ 101	$ 20
Individual Research Fellowships (F22)	—	—	—	—	2,068	946	676
Individual National Research Service Awards (F32)	—	—	—	—	—	1,702	2,574
Subtotal, Fellowships	$ 1,943	$ 2,052	$ 1,310	$ 802	$ 2,461	$ 2,749	$ 3,270
Graduate Training Grants (T01)	16,577	17,618	18,555	14,344	16,933	12,175	8,098
Pulmonary Faculty Training Centers (T17)	—	—	—	—	—	359	398
Institutional National Research Service Awards (T32)	—	—	—	—	—	4,685	8,793
Subtotal, Training Grants	$16,577	$17,618	$18,555	$14,344	$16,933	$17,219	$17,289
Total, NHLBI Manpower Programs	$18,520	$19,670	$19,865	$15,146	$19,394	$19,968	$20,559

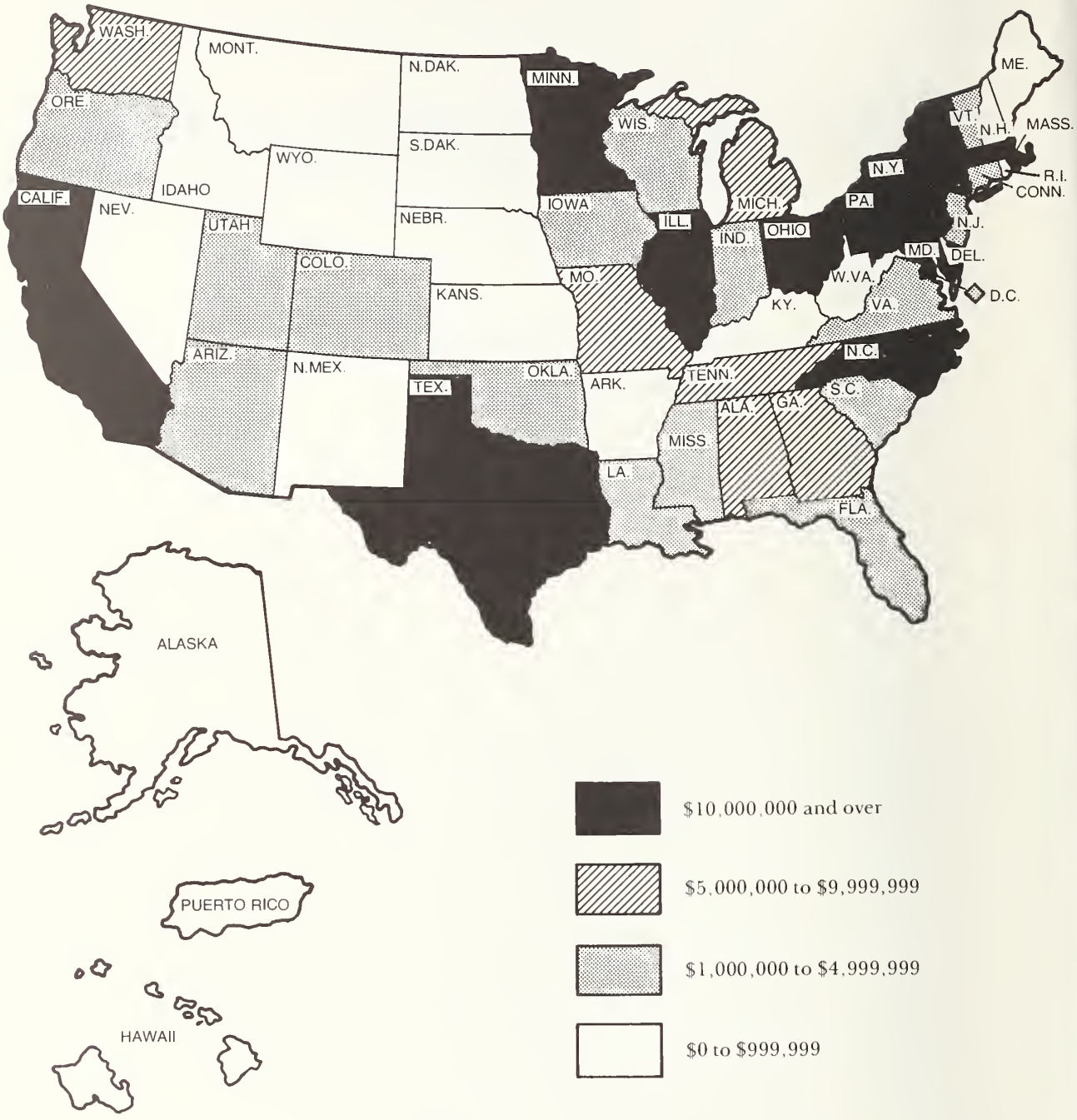
Number of Trainees by Activity (Full-Time Equivalents): Fiscal Years 1970-1976

	FY 1970	FY 1971	FY 1972	FY 1973	FY 1974	FY 1975	FY 1976
Postdoctoral and Special Fellowships (F02, F03)	176	168	144	72	36	10	1
Individual Research Fellowships (F22)	—	—	—	—	167	56	43
Individual National Research Service Awards (F32)	—	—	—	—	—	138	193
Subtotal, Fellowships	176	168	144	72	203	204	237
Graduate Training Grants (T01)	980	1,012	980	880	852	552	340
Pulmonary Faculty Training Centers (T17)	—	—	—	—	—	24	24
Institutional National Research Service Awards (T32)	—	—	—	—	—	279	491
Subtotal, Training Grants	980	1,012	980	880	852	855	855
Total, NHLBI Manpower Programs	1,156	1,180	1,124	952	1,055	1,059	1,092

12. Distribution of Grants, Contracts, and Manpower Funding: Fiscal Year 1976

Geographic Distribution by State 86
Institutional Distribution 87

Geographic Distribution by State: Fiscal Year 1976



Institutional Distribution: Fiscal Year 1976

INSTITUTION	RESEARCH GRANTS No.	RESEARCH GRANTS Amount	MANPOWER PROGRAMS No.	MANPOWER PROGRAMS Amount	CONTRACTS No.	CONTRACTS Amount	TOTALS No.	TOTALS Amount
UNITED STATES								
Alabama								
Southern Research Institute	1	$ 5,243	—	$ —	—	$ —	1	$ 5,243
University of Alabama in Birmingham	8	3,976,397	—	—	4	2,219,328	12	6,195,725
University of South Alabama	6	217,271	—	—	—	—	6	217,271
Total, Alabama	**15**	**4,198,911**	**—**	**—**	**4**	**2,219,328**	**19**	**6,418,239**
Alaska								
University of Alaska	1	95,901	—	—	—	—	1	95,901
Total, Alaska	**1**	**95,901**	**—**	**—**	**—**	**—**	**1**	**95,901**
Arizona								
University of Arizona	17	1,205,069	3	84,936	2	226,805	22	1,516,810
Total, Arizona	**17**	**1,205,069**	**3**	**84,936**	**2**	**226,805**	**22**	**1,516,810**
Arkansas								
University of Arkansas Medical Sciences Campus	3	156,688	—	—	1	380,710	4	537,398
Veterans Administration Hospital	1	31,784	—	—	—	—	1	31,784
Total, Arkansas	**4**	**188,472**	**—**	**—**	**1**	**380,710**	**5**	**569,182**
California								
Aerojet Liquid Rocket Company	—	—	—	—	1	756,700	1	756,700
Aerospace Corporation	1	101,408	—	—	—	—	1	101,408
Andros, Inc.	—	—	—	—	2	698,896	2	698,896
Bio-Science Laboratories	—	—	—	—	1	282,300	1	282,300
California Institute of Technology	4	359,607	2	20,000	—	—	6	379,607
Cedars-Sinai Medical Center	3	1,384,620	—	—	1	731,787	4	2,116,407
Charles R. Drew Post-graduate Medical School	1	80,720	—	—	1	197,145	2	277,865
Children's Hospital Medical Center of Northern California	3	97,071	—	—	—	—	3	97,071
Children's Hospital of Los Angeles	1	71,403	—	—	1	209,162	2	280,565
City of Hope Medical Center	5	428,109	—	—	—	—	5	428,109
General Atomic Company	—	—	—	—	1	103,067	1	103,067
Gould, Inc.—Statham Instruments Division	—	—	—	—	1	33,376	1	33,376
Institutes of Medical Sciences	5	251,619	—	—	1	524,099	6	775,718
Konigsberg Instruments	—	—	—	—	1	22,340	1	22,340
Laboratory for Comparative Biochemistry	2	149,708	—	—	—	—	2	149,708
Loma Linda University	4	450,441	1	56,331	—	—	5	506,772

INSTITUTION	RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS		TOTALS	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Los Angeles County Harbor General Hospital	7	335,094	4	149,115	—	—	11	484,209
Los Angeles County-Olive View Medical Center	1	78,331	—	—	—	—	1	78,331
Los Angeles County - University of Southern California Medical Center	1	40,854	—	—	—	—	1	40,854
Martin Luther King, Jr. General Hospital	1	368,723	—	—	—	—	1	368,723
McDonnell Douglas Corporation	—	—	—	—	1	705,197	1	705,197
Mount Zion Hospital and Medical Center	4	232,801	—	—	—	—	4	232,801
Palo Alto Medical Research Foundation	1	231,757	—	—	1	81,434	2	313,191
Physics International Company	—	—	—	—	1	291,421	1	291,421
Rancho Los Amigos Hospital	4	617,083	—	—	—	—	4	617,083
Rand Corporation	1	114,594	—	—	—	—	1	114,594
San Francisco Medical Society	—	—	—	—	1	3,628	1	3,628
San Francisco State University	1	29,996	—	—	—	—	1	29,996
Santa Clara Valley Medical Center	1	56,751	—	—	—	—	1	56,751
Scripps Clinic and Research Foundation	7	745,302	2	91,151	—	—	9	836,453
Scripps Memorial Hospital	1	117,273	—	—	—	—	1	117,273
Searle Cardio-Pulmonary Systems	—	—	—	—	2	645,422	2	645,422
St. Joseph Medical Center	2	98,588	—	—	—	—	2	98,588
Stanford Research Institute	6	627,115	—	—	1	147,450	7	774,565
Stanford University	22	3,197,565	6	511,441	2	53,054	30	3,762,000
Statham Instruments	—	—	—	—	—	—	1	215,690
United States NASA, Pasadena Office	—	—	—	—	2	275,000	2	275,000
United States Public Health Service Hospital	2	208,153	—	—	1	76,822	3	284,975
University of California, Berkeley	10	1,188,116	2	38,116	2	117,963	14	1,344,195
University of California, Davis	12	853,892	6	292,600	2	546,588	20	1,693,080
University of California, Irvine	7	437,577	—	—	—	—	7	437,577
University of California, Los Angeles	32	2,910,597	7	176,366	1	102,000	40	3,188,963
University of California, Riverside	1	39,580	—	—	—	—	1	39,580
University of California, San Diego	46	6,115,162	30	1,005,037	3	1,959,404	79	9,079,603
University of California, San Francisco	39	8,111,305	14	1,299,680	4	405,020	57	9,816,005
University of California, Santa Cruz	1	64,534	1	3,000	—	—	2	67,534
University of Southern California	17	1,571,244	4	159,320	5	2,511,914	26	4,242,478

INSTITUTION	RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS		TOTALS	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
University of the Pacific	.1	139,383	1	10,000	7	757,730	9	907,113
Veterans Administration Hospital	.1	36,513	—	—	—	—	1	36,513
Total, California	258	31,942,589	80	3,812,157	48	12,454,609	386	48,209,355
Colorado								
Colorado State University	.5	359,435	—	—	2	367,884	7	727,319
National Asthma Center	.3	113,367	1	38,353	—	—	4	151,720
National Jewish Hospital and Research Center	.4	116,653	—	—	—	—	4	116,653
University of Colorado	.5	137,437	—	—	—	—	5	137,437
University of Colorado Medical Center	18	1,399,609	9	321,000	2	129,695	29	1,850,304
Total, Colorado	35	2,126,501	10	359,353	4	497,579	49	2,983,433
Connecticut								
Bio-Gant Corporation	—	—	—	—	1	186,785	1	186,785
John B. Pierce Foundation of Connecticut	.2	129,056	1	14,500	—	—	3	143,556
University of Connecticut	.2	95,106	1	10,400	1	62,432	4	167,938
University of Connecticut Health Center	.8	410,846	2	71,831	—	—	10	482,677
Western Connecticut State College	.1	15,800	—	—	—	—	1	15,800
Yale University	18	2,140,716	8	79,700	4	398,061	30	2,618,477
Total, Connecticut	31	2,791,524	12	176,431	6	647,278	49	3,615,233
Delaware								
University of Delaware	.1	32,138	—	—	—	—	1	32,138
Total, Delaware	.1	32,138	—	—	—	—	1	32,138
District of Columbia								
American Institutes for Research	—	—	—	—	1	169,465	1	169,465
American National Red Cross	.6	369,483	—	—	1	208,190	7	577,673
Catholic University of America	.2	115,131	—	—	—	—	2	115,131
Federal Trade Commission	—	—	—	—	1	25,125	1	25,125
George Washington University	10	562,014	1	3,000	2	83,600	13	648,614
Georgetown University	.9	838,800	1	69,829	1	461,887	11	1,370,516
Howard University	.4	1,064,511	—	—	—	—	4	1,064,511
National Academy of Sciences	—	—	—	—	2	85,870	2	85,870
Roy Littlejohn Associates	—	—	—	—	1	284,622	1	284,622
United States Armed Forces Institute of Pathology	—	—	—	—	1	1,880	1	1,880
United States Environmental Protection Agency	—	—	—	—	1	25,000	1	25,000
United States Small Business Administration	—	—	—	—	1	39,900	1	39,900
United States Walter Reed Army Medical Center	—	—	—	—	1	11,600	1	11,600
Total, District of Columbia	31	2,949,939	2	72,829	13	1,397,139	46	4,419,907

INSTITUTION	RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS		TOTALS	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Florida								
Dade County Health Department	—	—	—	—	1	309,845	1	309,845
Florida State University	1	50,286	—	—	—	—	1	50,286
Mount Sinai Medical Center	2	151,148	1	47,520	1	130,532	4	329,200
Papanicolaou Cancer Research Institute	3	301,063	—	—	—	—	3	301,063
University of Florida	11	525,729	3	217,015	—	—	14	742,744
University of Miami	18	2,108,240	2	66,201	1	24,770	21	2,199,211
University of South Florida	4	134,224	—	—	—	—	4	134,224
Total, Florida	**39**	**3,270,690**	**6**	**330,736**	**3**	**465,147**	**48**	**4,066,573**
Georgia								
Emory University	12	696,386	1	12,800	3	2,139,772	16	2,848,958
Evans County Health Department	1	45,532	—	—	1	243,950	2	289,482
Georgia Institute of Technology	2	133,611	—	—	—	—	2	133,611
Medical College of Georgia	10	1,162,099	—	—	—	—	10	1,162,099
United States Center for Disease Control	—	—	—	—	6	1,213,245	6	1,213,245
University of Georgia	4	120,402	1	3,000	—	—	5	123,402
Total, Georgia	**29**	**2,158,030**	**2**	**15,800**	**10**	**3,596,967**	**41**	**5,770,797**
Hawaii								
Kuakini Medical Center	—	—	—	—	2	184,011	2	184,011
Pacific Health Research Institute	—	—	—	—	1	70,072	1	70,072
Queen's Medical Center	1	50,476	—	—	—	—	1	50,476
University of Hawaii at Manoa	7	261,605	1	4,983	—	—	8	266,588
Total, Hawaii	**8**	**312,081**	**1**	**4,983**	**3**	**254,083**	**12**	**571,147**
Illinois								
American College of Surgeons	—	—	—	—	1	6,062	1	6,062
Chicago Health Department	2	47,769	—	—	—	—	2	47,769
Children's Memorial Hospital	1	102,543	—	—	—	—	1	102,543
Evanston Hospital	1	38,672	—	—	1	75,686	2	114,358
Harlan E. Moore Heart Research Foundation	1	39,805	—	—	—	—	1	39,805
Hektoen Institute for Medical Research	1	78,760	—	—	—	—	1	78,760
IIT Research Institute	2	122,246	—	—	1	3,255	3	125,501
Loyola University Medical Center	2	579,885	1	99,356	—	—	3	679,241
Michael Reese Hospital and Medical Center	3	298,451	—	—	—	—	3	298,451
Michael Reese Research Foundation and Blood Center	1	110,668	—	—	—	—	1	110,668
Northwestern University	22	1,452,475	5	161,880	6	1,472,432	33	3,086,787
Rush-Presbyterian-St. Luke's Medical Center	6	302,723	1	61,814	2	932,818	9	1,297,355
Southern Illinois University	1	29,776	—	—	—	—	1	29,776

INSTITUTION	RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS		TOTALS	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
St. Joseph Hospital	—	—	—	—	1	98,675	1	98,675
University of Chicago	24	4,138,003	6	297,287	1	130,043	31	4,565,333
University of Health Sciences	2	74,806	—	—	—	—	2	74,806
University of Illinois, Chicago Circle	1	23,680	—	—	—	—	1	23,680
University of Illinois, Medical Center	10	1,103,741	2	117,888	1	29,300	13	1,250,929
University of Illinois, Urbana-Champaign	10	478,836	1	13,200	—	—	11	492,036
Veterans Administration Hospital	—	—	1	13,200	—	—	1	13,200
Total, Illinois	**90**	**9,022,839**	**17**	**764,625**	**14**	**2,748,271**	**121**	**12,535,735**
Indiana								
Indiana University at Indianapolis	12	2,103,426	3	170,462	1	47,856	16	2,321,744
Indiana University at Bloomington	3	214,442	1	13,800	—	—	4	228,252
Indianapolis Center for Advanced Research	—	—	—	—	1	12,754	1	12,754
Purdue University	5	325,846	2	8,234	—	—	7	334,080
University of Notre Dame	6	238,446	—	—	—	—	6	238,446
Total, Indiana	**26**	**2,882,170**	**6**	**192,496**	**2**	**60,610**	**34**	**3,135,276**
Iowa								
Iowa State University of Science and Technology	4	156,402	—	—	—	—	4	156,402
University of Iowa	18	1,821,842	10	314,119	3	1,113,986	31	3,249,947
Veterans Administration Hospital	—	—	—	—	1	372,065	1	372,065
Total, Iowa	**22**	**1,978,244**	**10**	**314,119**	**4**	**1,486,051**	**36**	**3,778,414**
Kansas								
Kansas State University	2	58,079	—	—	—	—	2	58,079
University of Kansas	10	368,481	2	42,986	1	103,939	13	515,406
Total, Kansas	**12**	**426,560**	**2**	**42,986**	**1**	**103,939**	**15**	**573,485**
Kentucky								
University of Kentucky	8	596,686	1	76,380	1	3,833	10	676,899
University of Louisville	3	137,490	1	10,800	—	—	4	148,290
Total, Kentucky	**11**	**734,176**	**2**	**87,180**	**1**	**3,833**	**14**	**825,189**
Louisiana								
Alton Ochsner Medical Foundation	1	35,205	—	—	—	—	1	35,205
Louisiana State University, Baton Rouge	1	70,259	—	—	—	—	1	70,259
Louisiana State University, Medical College, New Orleans	6	1,427,677	1	107,042	1	43,157	8	1,577,876
Louisiana State University, Medical College, Shreveport	1	43,332	—	—	—	—	1	43,332
Tulane University	10	611,409	5	272,467	—	—	15	883,876
United States Public Health Service Hospital	1	39,295	—	—	—	—	1	39,295
University of New Orleans	1	38,666	—	—	—	—	1	38,666
Total, Louisiana	**21**	**2,265,843**	**6**	**379,509**	**1**	**43,157**	**28**	**2,688,509**

INSTITUTION	RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS		TOTALS	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Maine								
Jackson Laboratory	1	41,083	—	—	—	—	1	41,083
Maine Department of Marine Resources	1	29,890	—	—	—	—	1	29,890
Maine Medical Center	2	88,061	—	—	—	—	2	88,061
University of Maine at Orono	1	12,498	—	—	—	—	1	12,498
University of Maine, Portland-Gorham	1	62,641	—	—	—	—	1	62,641
Total, Maine	**6**	**234,173**	**—**	**—**	**—**	**—**	**6**	**234,173**
Maryland								
American Type Culture Collection	—	—	—	—	2	188,280	2	188,280
Baltimore City Hospitals	—	—	1	12,200	—	—	1	12,200
Enviro Control	—	—	—	—	1	785,124	1	785,124
Greater Baltimore Medical Center	—	—	—	—	1	44,000	1	44,000
Johns Hopkins University	41	4,849,953	19	1,087,955	8	2,443,626	68	8,381,534
Litton Bionetics	—	—	—	—	1	1,119,890	1	1,119,890
Microbiological Associates	—	—	—	—	1	45,990	1	45,990
Public Advisory Groups, Public Health Service	7	1,085,000	—	—	—	—	7	1,085,000
United States Agricultural Research Center	—	—	—	—	2	164,400	2	164,400
United States Consumer and Food Economic Institution	—	—	—	—	1	75,000	1	75,000
United States Food and Drug Administration	—	—	—	—	2	104,337	2	104,337
United States Health Services Administration	—	—	—	—	1	3,500,000	1	3,500,000
United States National Bureau of Standards	—	—	—	—	4	122,312	4	122,312
United States National Institutes of Health	—	—	16	101,523	4	946,358	20	1,047,881
United States Public Health Service Hospital	1	50,155	—	—	—	—	1	50,155
University of Maryland at Baltimore	7	1,179,436	1	13,800	2	1,150,501	10	2,343,737
University of Maryland, College Park Campus	1	27,681	—	—	1	2,800	2	30,481
Total, Maryland	**57**	**7,192,225**	**37**	**1,215,478**	**31**	**10,692,618**	**125**	**19,100,321**
Massachusetts								
Abcor, Inc	—	—	—	—	2	108,427	2	108,427
Arthur D. Little, Inc	—	—	—	—	1	109,160	1	109,160
Bay Biochemical Research	1	68,804	—	—	—	—	1	68,804
Beth Israel Hospital	5	639,992	2	140,965	—	—	7	780,957
Boston Biomedical Research Institute	4	407,813	2	86,642	—	—	6	494,455
Boston City Hospital	3	776,247	—	—	1	503,236	4	1,279,483
Boston Health and Hospitals Department	—	—	—	—	3	261,824	3	261,824
Boston University	32	4,033,021	6	365,565	3	322,309	41	4,720,895
Brandeis University	1	17,000	1	13,400	—	—	2	30,400
Cambridge Collaborative	—	—	—	—	1	118,130	1	118,130

INSTITUTION	RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS		TOTALS	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Center for Blood Research	1	65,159	—	—	2	583,059	3	648,218
Children's Hospital Medical Center	11	1,326,074	3	264,226	2	87,940	16	1,678,240
Clark University	1	45,836	—	—	—	—	1	45,836
Diagnostic Electronics Corporation	—	—	—	—	1	81,530	1	81,530
Everett Research Laboratory	—	—	—	—	2	216,998	2	216,998
Harvard University	37	3,966,438	29	1,028,490	1	142,684	67	5,137,612
Massachusetts General Hospital	15	3,287,433	6	217,865	2	95,516	23	3,600,814
Massachusetts Institute of Technology	7	1,627,660	4	25,550	1	70,257	12	1,723,467
McLean Hospital Division of Massachusetts General	1	44,612	—	—	—	—	1	44,612
New England Medical Center Hospitals	9	551,890	1	41,769	—	—	10	593,659
Peter Bent Brigham Hospital	16	1,245,899	12	351,612	—	—	28	1,597,511
Robert Breck Brigham Hospital	2	214,466	1	3,000	—	—	3	217,466
Sidney Farber Cancer Center	1	145,078	—	—	—	—	1	145,078
St. Elizabeth's Hospital of Boston	2	219,095	1	94,028	—	—	3	313,123
Thermo Electron Corporation	—	—	—	—	5	2,029,618	5	2,029,618
Tufts University	6	369,570	1	3,000	—	—	7	372,570
United States Public Health Service Hospital	1	48,895	—	—	—	—	1	48,895
University Hospital	8	727,674	—	—	1	124,560	9	852,234
University of Massachusetts, Amherst	4	138,319	—	—	—	—	4	138,319
University of Massachusetts Medical School	5	211,071	—	—	—	—	5	211,071
Whittaker Space Sciences Division	—	—	—	—	2	102,203	2	102,203
Total, Massachusetts	**173**	**20,178,046**	**69**	**2,636,112**	**30**	**4,957,451**	**272**	**27,771,609**
Michigan								
Henry Ford Hospital	3	123,016	—	—	2	138,574	5	261,590
Michigan Department of Public Health	—	—	—	—	1	107,162	1	107,162
Michigan State University	16	781,702	3	121,203	1	114,343	20	1,017,248
National Association for Sickle Cell Disease	—	—	—	—	1	24,709	1	24,709
Sinai Hospital of Detroit	1	510,597	—	—	—	—	1	510,597
University of Michigan	22	2,010,622	8	91,720	4	701,823	34	2,804,165
Wayne State University	14	1,095,933	—	—	1	176,000	15	1,271,933
Total, Michigan	**56**	**4,521,870**	**11**	**212,923**	**10**	**1,262,611**	**77**	**5,997,404**
Minnesota								
Hennepin County Medical Center	2	172,526	—	—	—	—	2	172,526
Mayo Clinic	1	42,012	1	3,000	—	—	2	45,012
Mayo Foundation	28	2,587,161	8	264,715	4	430,788	40	3,282,664
Mayo Medical School	—	—	1	16,200	—	—	1	16,200

INSTITUTION	RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS		TOTALS	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Mount Sinai Hospital	1	36,102	—	—	2	411,147	3	447,249
United Hospitals	1	76,815	1	20,355	—	—	2	97,230
University of Minnesota	40	5,520,091	16	510,664	6	5,296,079	62	11,326,834
Total, Minnesota	**73**	**8,434,767**	**27**	**814,934**	**12**	**6,138,014**	**112**	**15,387,715**
Mississippi								
University of Mississippi Medical Center	13	1,084,205	2	97,674	2	497,379	17	1,679,258
Total, Mississippi	**13**	**1,084,205**	**2**	**97,674**	**2**	**497,379**	**17**	**1,679,258**
Missouri								
Jewish Hospital of St. Louis	—	—	2	107,585	—	—	2	107,585
Midwest Research Institute	1	56,216	—	—	—	—	1	56,216
St. Louis Heart Association	—	—	—	—	1	372,039	1	372,039
St. Louis University	8	824,669	3	210,168	1	641,279	12	1,676,116
St. Luke's Hospital	1	41,976	—	—	—	—	1	41,976
University of Missouri, Columbia	18	1,078,998	4	143,360	1	72,517	23	1,294,875
University of Missouri, Kansas City	1	71,688	—	—	—	—	1	71,688
Washington University	28	5,040,853	5	406,396	2	125,622	35	5,572,871
Total, Missouri	**57**	**7,114,400**	**14**	**867,509**	**5**	**1,211,457**	**76**	**9,193,366**
Montana								
Montana State University	1	46,566	—	—	—	—	1	46,566
Total, Montana	**1**	**46,566**	**—**	**—**	**—**	**—**	**1**	**46,566**
Nebraska								
Creighton University	2	128,010	—	—	1	110,240	3	238,250
University of Nebraska, Lincoln	2	106,056	—	—	—	—	2	106,056
University of Nebraska Medical Center	5	286,372	1	3,000	—	—	6	289,372
Total, Nebraska	**9**	**520,438**	**1**	**3,000**	**1**	**110,240**	**11**	**633,678**
Nevada								
University of Nevada, Reno	1	38,081	—	—	—	—	1	38,081
Total, Nevada	**1**	**38,081**	**—**	**—**	**—**	**—**	**1**	**38,081**
New Hampshire								
Dartmouth College	9	394,741	1	96,516	—	—	10	491,257
University of New Hampshire	1	34,724	1	10,000	—	—	2	44,724
Total, New Hampshire	**10**	**429,465**	**2**	**106,516**	**—**	**—**	**12**	**535,981**
New Jersey								
College of Medicine and Dentistry of New Jersey	16	985,148	1	79,906	1	493,257	18	1,558,311
Princeton University	2	222,379	2	16,400	—	—	4	238,779
Rutgers Medical School	2	65,340	—	—	2	549,337	4	614,677
Rutgers University	1	31,996	—	—	—	—	1	31,996
Union Carbide Bound Brook Technical Center	—	—	—	—	2	136,563	2	136,563
Total, New Jersey	**21**	**1,304,863**	**3**	**96,306**	**5**	**1,179,157**	**29**	**2,580,326**
New Mexico								
New Mexico State University	1	30,651	—	—	—	—	1	30,651
University of New Mexico	7	292,601	—	—	1	37,190	8	329,791
Total, New Mexico	**8**	**323,252**	**—**	**—**	**1**	**37,190**	**9**	**360,442**

INSTITUTION	RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS		TOTALS	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
New York								
Albany Medical College	9	770,101	2	78,447	1	118,252	12	966,800
Brookdale Hospital Medical Center	1	55,121	—	—	—	—	1	55,121
Brookhaven National Laboratory	2	119,078	1	13,400	—	—	3	132,478
Calspan Corporation	—	—	—	—	1	68,649	1	68,649
Children's Hospital	1	61,620	—	—	—	—	1	61,620
City College of New York	1	54,477	—	—	—	—	1	54,477
Clarkson College of Technology	2	125,263	—	—	—	—	2	125,263
Columbia University	32	4,796,522	9	530,080	1	99,975	42	5,426,577
Community Blood Council of Greater New York	1	1,928,124	1	106,488	1	39,000	3	2,073,612
Cornell University	12	820,104	2	24,200	—	—	14	844,304
Cornell University Medical Center	24	4,030,304	7	183,732	1	154,239	32	4,368,275
Downstate Medical Center	16	1,565,384	2	13,000	—	—	18	1,578,384
Fordham University	2	78,155	—	—	—	—	2	78,155
General Electric Corporate Research and Development Center	—	—	—	—	2	187,154	2	187,154
Health Insurance Plan of Greater New York	1	262,613	—	—	—	—	1	262,613
Long Island Jewish-Hillside Medical Center	1	32,555	—	—	1	118,846	2	151,401
Maimonides Medical Center	1	43,416	—	—	—	—	1	43,416
Mary Imogene Bassett Hospital	1	67,093	—	—	—	—	1	67,093
Masonic Foundation for Medical Research and Human Welfare Laboratories	1	121,628	—	—	—	—	1	121,628
Medical Foundation of Buffalo	1	62,386	—	—	—	—	1	62,386
Memorial Hospital for Cancer-Allied Diseases	1	36,994	—	—	—	—	1	36,994
Montefiore Hospital and Medical Center	12	1,615,757	1	59,917	—	—	13	1,675,674
Mount Sinai School of Medicine	11	757,558	2	74,334	1	86,480	14	918,372
New York Academy of Sciences	1	16,363	—	—	—	—	1	16,363
New York City Health Services Administration	1	66,320	—	—	—	—	1	66,320
New York Medical College	10	495,925	1	13,200	1	60,190	12	569,315
New York State Department of Health	2	193,749	1	19,993	—	—	3	213,742
New York University	24	2,114,252	3	149,362	1	215,761	28	2,479,375
Polytechnic Institute of New York	2	59,612	—	—	—	—	2	59,612
Public Health Research Institute	1	79,198	—	—	—	—	1	79,198
Queens College	1	54,876	—	—	—	—	1	54,876
Rensselaer Polytechnic Institute	2	38,663	—	—	—	—	2	38,663

INSTITUTION	RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS		TOTALS	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Rockefeller University	12	2,097,270	—	—	1	122,000	13	2,219,270
Roosevelt Hospital	2	137,672	—	—	—	—	2	137,672
Roswell Park Memorial Institute	1	60,324	—	—	—	—	1	60,324
St. Luke's Hospital Center	4	336,427	—	—	—	—	4	336,427
St. Vincent's Hospital and Medical Center, New York	1	30,481	—	—	—	—	1	30,481
State University College at Plattsburgh	1	36,887	—	—	—	—	1	36,887
State University of New York at Albany	3	209,944	—	—	—	—	3	209,944
State University of New York at Binghamton	—	—	1	3,000	—	—	1	3,000
State University of New York at Buffalo	17	1,682,680	1	13,400	—	—	18	1,696,080
State University of New York at Stony Brook	7	303,326	—	—	1	28,450	8	331,776
Syracuse University	3	142,468	—	—	—	—	3	142,468
Transplantation Society	—	—	—	—	2	13,594	2	13,594
Trudeau Institute	1	90,067	—	—	—	—	1	90,067
United States Energy Research and Development Administration, Brookhaven	—	—	—	—	1	40,000	1	40,000
United States Public Health Service Hospital	1	31,706	—	—	—	—	1	31,706
University of Rochester	21	1,154,913	6	292,158	1	112,790	28	1,559,861
Upstate Medical Center	9	513,308	2	72,364	—	—	11	585,672
Veterans Administration Hospital, Brooklyn	—	—	—	—	1	15,250	1	15,250
Yeshiva University	27	2,552,422	8	386,385	2	219,286	37	3,158,093
Total, New York	**287**	**29,903,106**	**50**	**2,033,460**	**20**	**1,699,916**	**357**	**33,636,482**
North Carolina								
Duke University	47	5,778,461	18	628,986	2	63,430	67	6,470,877
North Carolina State University, Raleigh	2	85,544	—	—	—	—	2	85,544
Research Triangle Institute	—	—	—	—	2	144,939	2	144,939
United States NIEHS Environmental Health Science Center	—	—	1	11,443	—	—	1	11,443
University of North Carolina, Chapel Hill	22	2,068,838	12	370,688	3	5,087,722	37	7,527,248
Wake Forest University	6	981,686	3	296,627	1	205,060	10	1,483,373
Total, North Carolina	**77**	**8,914,529**	**34**	**1,307,744**	**8**	**5,501,151**	**119**	**15,723,424**
North Dakota								
University of North Dakota	2	50,532	1	58,640	—	—	3	109,172
Total, North Dakota	**2**	**50,532**	**1**	**58,640**	**—**	**—**	**3**	**109,172**
Ohio								
Battelle Memorial Institute	—	—	—	—	1	53,398	1	53,398
Case Western Reserve University	15	1,381,147	6	243,682	—	—	21	1,624,829
Children's Hospital Medical Center	5	582,245	—	—	—	—	5	582,245

INSTITUTION	RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS		TOTALS	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Cleveland Clinic Hospital	11	1,740,374	1	61,830	2	390,419	14	2,192,623
Cleveland State University	1	15,795	—	—	—	—	1	15,795
Cox Heart Institute	1	4,495	—	—	2	1,486,420	3	1,490,915
Fels Research Institute	1	167,841	—	—	—	—	1	167,841
Medical College of Ohio at Toledo	6	505,709	—	—	1	228,564	7	734,273
Mount Sinai Hospital of Cleveland	4	475,604	—	—	—	—	4	475,604
Ohio State University	17	803,153	4	265,483	1	88,063	22	1,156,699
St. Luke's Hospital	2	76,623	—	—	—	—	2	76,623
St. Vincent Charity Hospital	3	156,972	—	—	—	—	3	156,972
University of Cincinnati	10	408,403	2	6,000	3	2,337,023	15	2,751,426
Wright State University	1	74,255	—	—	—	—	1	74,255
Total, Ohio	**77**	**6,392,616**	**13**	**576,995**	**10**	**4,583,887**	**100**	**11,553,498**
Oklahoma								
Oklahoma Medical Research Foundation	8	418,396	1	64,963	1	28,000	10	511,359
Oklahoma State University	1	49,481	—	—	1	63,833	2	113,314
University of Oklahoma	1	42,242	—	—	—	—	1	42,242
University of Oklahoma Health Sciences Center	4	600,193	5	229,169	—	—	9	829,362
Total, Oklahoma	**14**	**1,110,312**	**6**	**294,132**	**2**	**91,833**	**22**	**1,496,277**
Oregon								
Medical Research Foundation of Oregon	3	288,790	—	—	—	—	3	288,790
Oregon College of Education	1	1,269	—	—	—	—	1	1,269
Oregon State University	1	54,063	—	—	—	—	1	54,063
Providence Medical Center	1	68,200	—	—	—	—	1	68,200
University of Oregon	1	5,992	—	—	—	—	1	5,992
University of Oregon Health Sciences Center	11	1,519,279	5	245,230	2	178,669	18	1,943,178
Total, Oregon	**18**	**1,937,593**	**5**	**245,230**	**2**	**178,669**	**25**	**2,361,492**
Pennsylvania								
Allegheny General Hospital	1	18,748	—	—	—	—	1	18,748
Carnegie-Mellon University	2	97,350	—	—	1	73,500	3	170,850
Children's Hospital of Philadelphia	4	447,110	1	39,057	—	—	5	486,167
Drexel University	1	48,898	2	154,042	—	—	3	202,940
Franklin Institute of the State of Pennsylvania	—	—	—	—	1	52,500	1	52,500
Hahnemann Medical College and Hospital of Philadelphia	5	191,653	—	—	1	624,922	6	816,575
Lankenau Hospital	2	108,045	—	—	1	1,300,887	3	1,408,932
Lehigh University	1	30,180	—	—	—	—	1	30,180
Medical College of Pennsylvania	8	338,727	1	16,600	—	—	9	355,327
Mercy Catholic Medical Center	1	71,580	—	—	—	—	1	71,580
Montefiore Hospital	1	46,569	—	—	—	—	1	46,569
Pennsylvania State University, Hershey Medical Center	15	798,469	5	127,512	1	109,687	21	1,035,668

INSTITUTION	RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS		TOTALS	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Pennsylvania State University	12	529,949	—	—	—	—	12	529,949
Philadelphia General Hospital	2	83,953	—	—	1	121,703	3	205,656
Pittsburgh Child Guidance Center	1	59,072	—	—	—	—	1	59,072
Polysciences, Inc	—	—	—	—	1	87,660	1	87,660
Temple University	18	2,015,839	3	85,625	—	—	21	2,101,464
Thomas Jefferson University	11	855,268	2	6,733	—	—	13	862,001
University of Pennsylvania	54	7,159,512	16	357,791	2	290,958	72	7,808,261
University of Pittsburgh	11	1,080,826	3	183,751	2	2,066,285	16	3,330,862
Wistar Institute of Anatomy and Biology	4	357,698	1	3,000	—	—	5	360,698
Zoological Society of Philadelphia	1	51,081	—	—	—	—	1	51,081
Total, Pennsylvania	**155**	**14,390,527**	**34**	**974,111**	**11**	**4,728,102**	**200**	**20,092,740**
Puerto Rico								
University of Puerto Rico, Medical Science Campus	1	35,072	—	—	2	454,811	3	489,883
Total, Puerto Rico	**1**	**35,072**	**—**	**—**	**2**	**454,811**	**3**	**489,883**
Rhode Island								
Brown University	4	214,474	—	—	—	—	4	214,474
Gordon Research Conferences	1	6,000	—	—	—	—	1	6,000
Memorial Hospital	1	44,888	—	—	1	50,313	2	95,201
University of Rhode Island	4	138,318	—	—	—	—	4	138,318
Total, Rhode Island	**10**	**403,680**	**—**	**—**	**1**	**50,313**	**11**	**453,993**
South Carolina								
Medical University of South Carolina	7	348,663	—	—	—	—	7	348,663
University of South Carolina	—	—	—	—	1	941,966	1	941,966
Total, South Carolina	**7**	**348,663**	**—**	**—**	**1**	**941,966**	**8**	**1,290,629**
South Dakota								
University of South Dakota	2	45,256	—	—	—	—	2	45,256
Total, South Dakota	**2**	**45,256**	**—**	**—**	**—**	**—**	**2**	**45,256**
Tennessee								
Meharry Medical College	2	61,808	—	—	—	—	2	61,808
Oak Ridge Associated Universities	1	63,927	—	—	—	—	1	63,927
St. Jude Children's Research Hospital	5	198,170	1	10,800	—	—	6	208,970
University of Tennessee Center for Health Sciences	20	1,828,032	1	13,200	1	6,720	22	1,847,952
University of Tennessee	5	250,785	—	—	1	61,229	6	312,014
Vanderbilt University	20	2,916,178	3	60,769	—	—	23	2,976,947
Veterans Administration Hospital	—	—	—	—	1	32,726	1	32,726
Total, Tennessee	**53**	**5,318,900**	**5**	**84,769**	**3**	**100,675**	**61**	**5,504,344**

INSTITUTION	RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS		TOTALS	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Texas								
American Heart Association	1	6,459	—	—	—	—	1	6,459
Baylor College of Medicine	18	4,820,850	5	134,158	1	1,380,060	24	6,335,068
North Texas State University	1	32,927	—	—	—	—	1	32,927
Rice University	7	377,448	1	13,400	—	—	8	390,848
Southwest Foundation for Research and Education	—	—	—	—	2	750,501	2	750,501
Texas Agricultural and Mechanical University	3	98,988	—	—	—	—	3	98,988
Texas Heart Institute	2	203,063	—	—	—	185,994	3	389,057
Texas Tech University	4	108,606	—	—	—	—	4	108,606
University of Houston	2	74,844	—	—	—	—	2	74,844
University of Texas, Austin	6	242,546	—	—	—	—	6	242,546
University of Texas Health Science Center	21	1,660,796	3	46,496	1	4,615,014	25	6,322,306
University of Texas Health Science Center, Dallas	29	2,855,672	6	356,326	1	66,513	36	3,278,511
University of Texas Medical Branch, Galveston	21	1,066,945	5	51,254	1	99,800	27	1,217,999
University of Texas, San Antonio	1	44,055	—	—	—	—	1	44,055
University of Texas System Cancer Center	—	—	—	—	1	74,059	1	74,059
Total, Texas	**116**	**11,593,199**	**20**	**601,634**	**8**	**7,171,941**	**144**	**19,366,774**
Utah								
Latter-Day Saints Hospital	2	68,033	1	46,649	—	—	3	114,682
Ogden Research Foundation	—	—	—	—	1	80,000	1	80,000
Primary Children's Medical Center	1	3,431	—	—	—	—	1	3,431
Salt Lake Clinic Research Foundation	—	—	—	—	1	72,371	1	72,371
University of Utah	17	1,965,326	2	86,395	5	789,479	24	2,841,200
Total, Utah	**20**	**2,036,790**	**3**	**133,044**	**7**	**941,850**	**30**	**3,111,684**
Vermont								
University of Vermont and State Agriculture College	13	1,624,020	5	316,826	2	259,800	20	2,200,646
Total, Vermont	**13**	**1,624,020**	**5**	**316,826**	**2**	**259,800**	**20**	**2,200,646**
Virginia								
Arctic Institute of North America	1	71,150	—	—	—	—	1	71,150
Eastern Virginia Medical School	2	56,155	—	—	—	—	2	56,155
JRB Associates	—	—	—	—	1	175,200	1	175,200
Kappa Systems	—	—	—	—	1	1,408,631	1	1,408,631
Max Foltz Farms	—	—	—	—	1	113,080	1	113,080
Meloy Laboratories	—	—	—	—	1	253,788	1	253,788
University of Virginia	27	1,053,521	11	277,582	2	208,595	40	1,539,698
Virginia Commonwealth University	16	915,104	1	83,260	1	104,742	18	1,103,106
Virginia Polytechnic Institute and State University	1	38,383	—	—	—	—	1	38,383
Total, Virginia	**47**	**2,134,313**	**12**	**360,842**	**7**	**2,264,036**	**66**	**4,759,191**

INSTITUTION	RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS		TOTALS	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
Washington								
Institute of Applied Physiology/Medicine	2	86,026	—	—	—	—	2	86,026
Pacific Northwest Laboratories	1	36,294	—	—	—	—	1	36,294
Providence Medical Center	4	266,322	—	—	1	27,242	5	293,564
Puget Sound Blood Center	1	685,773	—	—	—	—	1	685,773
United States Public Health Service Hospital	1	51,698	—	—	—	—	1	51,698
University of Washington	39	5,005,538	11	539,272	4	353,200	54	5,898,010
Virginia Mason Research Center	6	223,298	—	—	—	—	6	223,298
Washington State University	2	185,676	—	—	—	—	2	185,676
Total, Washington	**56**	**6,540,625**	**11**	**539,272**	**5**	**380,442**	**72**	**7,460,339**
West Virginia								
West Virginia University	3	94,836	1	34,588	—	—	4	129,424
Total, West Virginia	**3**	**94,836**	**1**	**34,588**	**—**	**—**	**4**	**129,424**
Wisconsin								
Marquette University	—	—	1	12,200	—	—	1	12,200
Marshfield Medical Foundation	—	—	—	—	2	26,979	2	26,979
Medical College of Wisconsin	15	1,337,416	3	96,516	4	410,033	22	1,843,965
Milwaukee Blood Center	1	91,649	1	10,773	1	159,920	3	262,342
Mount Sinai Medical Center	—	—	—	—	1	59,960	1	59,960
University of Wisconsin, Madison	29	1,183,556	8	141,591	3	288,270	40	1,613,417
University of Wisconsin, Milwaukee	1	42,090	—	—	—	—	1	42,090
Total, Wisconsin	**46**	**2,654,711**	**13**	**261,080**	**11**	**945,162**	**70**	**3,860,953**
Wyoming								
University of Wyoming	1	3,431	—	—	—	—	1	3,431
Total, Wyoming	**1**	**3,431**	**—**	**—**	**—**	**—**	**1**	**3,431**
TOTAL, UNITED STATES	**2,141**	**$215,536,739**	**538**	**$20,510,964**	**314**	**$82,966,177**	**2,993**	**$319,013,870**
FOREIGN								
Argentina								
Institute of Biology and Experimental Medicine	1	50,739	—	—	—	—	1	50,739
Total, Argentina	**1**	**50,739**	**—**	**—**	**—**	**—**	**1**	**50,739**
Australia								
University of Melbourne	1	83,563	—	—	—	—	1	83,563
Total, Australia	**1**	**83,563**	**—**	**—**	**—**	**—**	**1**	**83,563**
Canada								
Dalhousie University	—	—	—	—	1	197,371	1	197,371
McMaster University	—	—	—	—	1	72,500	1	72,500

INSTITUTION	RESEARCH GRANTS		MANPOWER PROGRAMS		CONTRACTS		TOTALS	
	No.	Amount	No.	Amount	No.	Amount	No.	Amount
McGill University	—	—	—	—	1	105,750	1	105,750
Montreal Heart Institute	—	—	—	—	1	78,762	1	78,762
University of Manitoba	—	—	—	—	1	107,860	1	107,860
Total, Canada	—	—	—	—	5	562,243	5	562,243
Denmark								
Odense University	—	—	1	250	—	—	1	250
University of Aarhus	1	32,362	—	—	—	—	1	32,362
Total, Denmark	1	32,362	1	250	—	—	2	32,612
Federal Republic of Germany								
University of the Ruhr	—	—	1	15,377	—	—	1	15,377
Total, Federal Republic of Germany	—	—	1	15,377	—	—	1	15,377
Israel								
Weizmann Institute of Science	—	—	—	—	1	86,000	1	86,000
Total, Israel	—	—	—	—	1	86,000	1	86,000
Japan								
Kinki University	1	34,900	—	—	—	—	1	34.900
United States Radiation Effects Research Foundation	—	—	—	—	1	75,000	1	75,000
Total, Japan	1	34,900	—	—	1	75,000	2	109,900
New Zealand								
University of Otago	1	14,719	—	—	—	—	1	14,719
Total, New Zealand	1	14,719	—	—	—	—	1	14,719
Sweden								
Caroline Institute	2	74,751	—	—	—	—	2	74,751
Gothenburg University	—	—	1	13,200	—	—	1	13,200
Total, Sweden	2	74,751	1	13,200	—	—	3	87,951
United Kingdom								
Brompton Hospital	—	—	—	—	1	32,126	1	32,126
Medical Research Clinical Laboratory of Molecular Biology	—	—	1	3,000	—	—	1	3,000
Radcliffe Infirmary	—	—	1	5,572	—	—	1	5,572
University of Bristol	—	—	1	758	—	—	1	758
University of Leeds	1	20,349	—	—	—	—	1	20,349
University of Oxford	—	—	1	10,000	—	—	1	10,000
Total, United Kingdom	1	20,349	4	19,330	1	32,126	6	71,805
TOTAL, FOREIGN	8	$311,383	7	$48,157	8	$755,369	23	$1,114,909
GRAND TOTAL	2,149	$215,848,122	545	$20,559,121	322	$83,721,546	3,016	$320,128,789

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